

Sketch-Book No 5.

From September 7<sup>th</sup> 1836

To November 7<sup>th</sup> 1836

Including crude Essays, and first thoughts.

---

“If along with this habit [of study] there be cultivated the practice of constantly writing such views as arise, we perhaps describe that state of mental discipline by which talents of a very moderate order may be applied in a conspicuous and useful manner to any subject to which they are devoted. Such writing need not be made at first with any great attention to method, but merely put aside for future consideration; and in this manner the different departments of a subject will develop and arrange themselves as they advance in a manner equally pleasing and wonderful.”

Abercrombie’s “Inquiries concerning the Intellectual Powers and the Investigation of Truth”



Frost- Severe one. (1836)

Art.

1. In our last notice of the weather, September 2, (No. 4) we expressed apprehensions of a destructive frost, from the remarkable coldness of the nights which had sometime prevailed; and on the night of the 6<sup>th</sup> of September a pretty severe ~~frost~~ one occurred which nearly destroyed some pieces of Broom Corn, particularly in the low and moist parts of our meadow, and some of the Garden plants. In some places the tops of the Indian Corn were killed, but I think the ears were not much damaged. The consequent loss of the Broom Corn will be considerable. The tops of some of our Street Maples show the effects, by putting on the yellow and red hue of Autumn, while others are wholly untouched  
of

of the effect of the frost in the hill towns, we are not apprised ‡ From the general principle that the temperature decreases according to elevation, we might suppose that frosts would first occur on high lands; but this is not always the case. Moisture seems to have a hand in the occurrence production of frosts, and the lowest and most damp parts of our valley first experience their effects. A solution of this is desirable.

In an Essay on Dew, by Dr Wells of England, we have some facts which afford data for an explanation of the rationale of frosts.

It has been observed that dew is always most copious during clear and calm nights; and that it is accompanied with a reduction of temperature. The Dr seems to have established these facts. By a great variety of experiments he proves that

‡ Since informed, little damaged
----------------------------------

dew

dew is never formed upon any substance until the temperature of that substance has been reduced below the temperature of the surrounding atmosphere; and that this cold which accompanies dew, precedes instead of following the production of that fluid. He proves also, that the surface of the ground, as well as other bodies, has its temperature reduced below that of the atmosphere, by being freely exposed to the clear sky, and that whatever screens it from this exposure, prevents the reduction of temperature. Thus on a clear & calm nights, a thermometer, in contact with the grass frequently stood from  $7^{\circ}$  to  $12^{\circ}$ , and on one occasion  $15^{\circ}$ . lower than another situated 4 feet above the surface; and that two thermometers which were both in contact with the grass, one being freely exposed, and the other sheltered by a screen of paste board, the former sometimes indicated a temperature  $10^{\circ}$  below the latter. In cloudy weather, and when there was wind, no great difference

was observed in the thermometers; but in such weather, a clear interval seldom failed to produce a great reduction of temperature on the surface of the ground, while a passing cloud over a clear sky generally raised the thermometer on the grass, several degrees. He further observed that when bodies which had been equally exposed to the air, were examined at the same time those which had suffered the greatest reduction of temperature had also collected the greatest quantity of dew, and that substances which had been exposed to the sky were uniformly more dewed than those which had been screened.

By placing 10 grains of wool on the grass covered with a pasteboard screen shaped like the roof of a house, the ends open, and another quantity of the same weight on another part of the grass, uncovered, the Dr found in the morning, that the sheltered wool had increased its weight only  
two

2 grains; but that which had been exposed to the sky, 16 grains.

The opinion that dew is produced at night by vapor emitted from the earth and vegetable substances, has been satisfactorily refuted by the Dr, at least in so far as he has demonstrated, that a great proportion of it is deposited from the atmosphere.

From the experiments which Dr Wells has made, he deduces the following theory of the production of dew. Viz. "On the commonly received and well established fact, that bodies have a tendency to throw off caloric by radiation to other bodies, whose temperature is lower, he supposes the earth is continually radiating its heat to the high and colder regions of the atmosphere, that, in the day time, the effects of this radiation are not sensible, being more than counterbalanced by the greater influx of heat from the direct influence of the sun; but that during the night, when the counteracting cause is removed, these effects

effects become sensible, and produce the reduction of temperature above stated, unless, where clouds interpose, which operate as a screen in arresting the rays of heat." When cloudy the Dr thinks heat may be radiated from the clouds to the earth.

When the temperature of the ground, after the deposition of moisture has taken place, is at or below  $32^{\circ}$  the dew is congealed, and becomes hoar frost. And according to the above experiments this may happen when the temperature of the atmosphere a few feet above ~~the~~ is considerably above 40 degrees.

If the theory of the Dr be admitted as correct, and it can be shown that radiation in low mo[i]st ground is more copious than from that which is higher & less moist, we may explain why the former are more subject to frost than the latter.

Moreover, if it be true, as is expected, that vapour when passing from  
the



aeroform to the fluid state, gives out instead of absorbing caloric, and may account for the coldness felt when we enter the fog of a valley in the evening or morning, where it is found” As the air form vapour condenses, separates from the atmosphere and forms fog, the caloric escapes into surrounding atmosphere and leaves the fog at a lower temperature than the adjacent air.

For a more full view of this subject See the article Meteorology in the 13<sup>th</sup> Vol. Edinburgh Encyclopaedia, page 185.

---

## 2. Clearing a Country of its Native Woods.

Whether this operation has any effect on the climate of a Country has often been made a question, and without any fact. Other than my own experience, I should assume the affirmative side of the question

Our summer showers are less severe have changed their point of rising and our warm seasons have abetted, in some degree. Our winter snows (with the exception of the late) much less, and generally the

air of winter is of a higher temperature. These facts are according to my own recollection, but they do not accord with the assertions of many others, who are of opinion that the countries in the northern hemisphere are becoming colder than they were formerly.

Mr. William Madume in his observations on the Geology of the United States says, "The clearing away of the woods, favors the accumulation of heat in the earth, but decreases the quantity of vapour that in passing woods be condensed into rain. It would therefore seem to be prudent in such countries, not to clear more land than is positively necessary, and on no account to cut down the trees that crown the tops of the hills, and mountains; for by leaving their tops, the summer temperature will be so much increased, that the clouds will pass over them without condensing" and the effects he says will be similar to those produced by cutting away the woods in the west Indies, though

not in so great a degree. See Transactions of the American Philosophical Society, held at Philadelphia, Vol. 1 new Series p. 65.

I have said, our warm seasons have abated and our winters, in general, become less cold. Mr. Madume's theory militates against this supposition. But admitting that clearing away the woods will allow the sun's rays to act with greater force on the surface of the ground, may not other causes prevent an increase of temperature in the summer season?

According to Dr Wells' theory, the radiation of that from the surface of the ground must be greater in open than in covered countries and consequently, in the night, the ground will be more cooled, than where it is covered with woods. May not also, the increased evaporation from the surface of open ground in the day time, produce the same effect?

One other counteracting cause may be mentioned. If it be true that the surface of the ground in open countries, becomes more heated in the day time

than

on the formation of Dews-page 6 of this No.

than in covered countries according to the theory of Madume, may not this heated air rise to the higher regions of the atmosphere, and thereby produce a descent of the colder air in those regions like the heated fluid at ~~from~~ the bottom of a vessel over a fire, as in the experiments described by Count Rumsford in his Philosophical Essays?

Defects of the cold air of the upper regions of the Atmosphere have a sudden effect on the temperature of the lower air; and I think our sudden changes from heat to cold, are often produced by this cause. In hot weather when a sudden shower occurs, the lower air shaded by the clouds is cooled, the cold water which falls producing the same effect, the upper air rushes down to restore the equilibrium. Instances have occurred within my observation in which a narrow shower passing over our meadow, has caused such a rapid descent of the upper air, as to prostrate full grown Indian Corn, in opposite directions. And it  
is

not in common when a shower passes north or south of us. at no great distance, to observe the vane on our steeple varying its direction, say from NW round to the S.E. keeping its head directed towards the centre of the Heaven, a proof that the wind proceeds from that point in perhaps all directions, and that it is caused by a dissent of the air from the upper regions of the atmosphere.

If then the state of the atmosphere be altered, by cutting away the woods of a country, it follows that this operation must have some effect on its climate; and whether the causes which have been assigned shall increase or diminish the heats of our summers is left to the decision of the natural philosopher.

Some European writers have endeavored to show that their supposed decrease of temperature in their climates is caused by an accumulation of ice in the polar regions; and that this deterioration will continue, and finally render northern countries unfit for the cultivation of some plants which now come to maturity.

### 3. Of Vegetable Mould & Morasses

“The quantity of this mould found in a soil is considered as a criterion of its richness” In new countries which have not been cleared, a large quantity of this mould is found upon the surface, deposited by the trees which overspread it; and it sometimes happens that the quantity is at first too great to admit of a crop of wheat; in which case some other crop should precede it. Many parts of New-England where the lands at first were found covered with this mould, are now almost barren fields, and require great quantities of manure to restore them to a due degree of fertility. Where the soil is ~~composed~~ constructed of decomposed rocks which contain in their elements some food for plants it may in some degree, be restored to its original fertility by the application of manure; but when the soil is destitute of these principles as is the case with soils composed of most of the primitive rocks, the land is of little value after the vegetable mould is exhausted.

Hence on primitive hills where granite rocks abound, the land must be poor unless great quantities of manure are applied. In such countries, however, many low places are found [ ] morasses where there is a good proportion of vegetable mould, washed in from the hills, and partially covered with water. These, where it is possible, should be drained and cultivated, and when well managed, will be excellent lands. Where these land are compassed by hills of small extent or limited bases, and low grounds may be found beyond them, the expense of a tunnel under them, may be within the rules of economy. In many instances barely lowering beds of streams which lead from morasses, may be sufficient for draining off the water from extensive & valuable tracts.

These hints are considered as important for many parts of New-England where barren hills already project to the eye of the traveler, extensive tracts of a dreary and repulsive aspect. As ~~It~~

As it may be of use for the farmer to know the chemical process by which the quantum of vegetable mould in a soil is determined, we add the following  
 A mass of the soil is thoroughly dried and then carefully weighted; the mass is then exposed to a red heat in a furnace, cooled and again weighed. The difference between the two weights is the quantity of vegetable matter lost by combustion, and if the process be carefully conducted, the result will not vary much from the truth.

---

4. Method of placing a Transit Telescope on the Meridian of a Any place.

Let the Transit Instrument be placed on the meridian, as nearly as can be guessed at, by the pole star; then observe the transits of two stars, one to the north and the other to the south, whose difference of R. Ascension is accurately known, (from tables or otherwise) does not exceed a quarter of an hour. Now if the difference of



the times of passing as observed by a clock or watch regulated to mean time be the same with the difference of the R. Ascensions, the telescope is in the meridian. But if the northern star passes the meridian first, as will be the case with beta Ursa Minores and beta Libra, and the interval of the observed time be greater than the difference of R.A. the telescope verges towards the east of the north meridian, and thereby prolongs the observed interval. If there fore in the next revolution of the northern star, it be kept on the middle wire of the telescope for half the number of seconds, by which the observed interval exceeded the true difference of R.A. the telescope following the star for that time, and then be suffered to remain in that position, it will now be exactly on the meridian.

But if the observed interval be less than the calculated ~~of~~ difference of R.A. the telescope verges towards the west of the true meridian; and there fore

the southern star, in the next revolution, must be kept on the middle of the wire of the telescope for half the number of seconds, by which the calculated difference of Right A. exceeds the observed interval.

The telescope being thus adjusted a distant mark should be fixed, so as to regain the meridian, after it has been removed.

When the nights are more than 12 hours, the following method may be used.

Choose some circumpolar star and observe its passage both above & below the pole, across the middle wire of the telescope, placed nearly in the meridian, noting the times by the clock; and if the interval of time between the passage of the star above and below the pole be equal to half a revolution of the stars (or half a sidereal day) as measured by the clock, the telescope is precisely in the meridian. But if the Star below the pole come later to the telescope than half a revolution of the stars, after

it has passed above the pole, the telescope verges to the east of the north meridian. And if the contrary it verges to towards the west.

The error of the telescope is determined by the following

Rule. To the proportional or logistical Logarithm of  $\frac{1}{2}$  difference between  $\frac{1}{2}$  a revolution of the Star and the interval of the two observations, add the Log. Co. Sine of the Lat. of the place, and the Log. secant of the Star's alt; and the sum, rejecting 30 from the index will be the proportional Log. of the time between the observation of the star above or below the pole, and the true time of its passage over the meridian.

Ex. Suppose beta Ursa Minoris is the Star  
Polar distance  $14^{\circ}-35'-30''$

Alt. above the pole  $54^{\circ}-33'$

Alt. on the meridian below the pole  $25^{\circ}-22'$

Lat  $39^{\circ}-57'-30''$  North.

Passage of the Star above the pole  $9^h -0-0$  PM

Do below the pole  $9^h 3'-16''$  AM

Clocks loss in solar time per day  $-4''$

As the clock looses 4" per Day, instead of 12  
hours, it counts for  $\frac{1}{2}$  Revolution  $11^h-59'-58''$   
Add time of Stars passage above pol.  $9-0-0$

20-59-58

Less -12

Passage under the pole A.III.= 8-59-58

had the telescope been right. But it  
was observed to pass at  $9^h-3'-16''$ , the  
Telescope therefore varies to the eastward  
of meridian because the star passed  
 $3'-18''$  later than  $\frac{1}{2}$  a revolution.

To proportional Log. of  $\frac{3'-18''}{2} = 1'-39'' = 2,0378$

Add Co.S. pol. dist.  $14^\circ-35'-30'' = 9,9858$

Co S. Lat. of place  $39-57-30 = 9,8846$

Sec. Alt. of star above P.  $54-33 = \underline{10,2366}$

Sum—30 in [ ] ----- 12,1448

=  $1'-17'',4$  = error of Tel. above pole.

For error of Do below the pole.

Prop Log  $1'-39''$  2,0378

Co S. pol. distance  $14^\circ,35'30''$  9,9858

Co. S. Lat.  $39^\circ-57'-30''$  98846

Sec. Stars Alt.  $25^\circ-22'$  10,0440

error below the pole=  $2'-0'',6$  1,9522=

If the Star, therefore at its next revo  
lution above the pole, be followed

by

the Telescope for 1'-17", 4 of time, & the star be kept on the west during that time the Tel. will then be on the meridian. If the Tel. had verged too much to the westward, the Star must be followed in its passage under the pole, during the time of the error of position under the pole.

The methods above, are the substance of those laid down by Dr Ewing, in his System of Natural & Experimental Philosophy. The former I think preferable because it depends less on the correct going of the clock. Perhaps the method of determining a meridian by taking the greatest elongation of a circumpolar Star on both sides of the pole, and bisecting the angle, is as accurate; especially when a large and well graduated instrument, capable of being read off to seconds by repetition, is used. An inconvenience attends both, as they require the night to be at least 12 hours long, when the weather is generally cold, and uncomfortable.

## 5. Electro-Magnetism

This new science of magnetism has recently received the attention of Philosophers, and affords a series of amusing and interesting experiments. An account of the whole subject may be found under the article Thermo-Electricity, in the Edinburgh Encyclopaedia

Under the article Science in the same work Vol. 16, are given some curious facts in relation to the effects of Iron Balls and hollow shells of the same metal on magnets.

Mr. Barlow has found by experiments that the attracting power of iron bodies for the magnet resides wholly on their surfaces, and is independent of their mass, provided the thickness ~~exceed~~ is not less than about the 20<sup>th</sup> part of an inch. Hence it followed that hollow balls or shells, whose thickness exceeded the 20<sup>th</sup> part of an inch, had the same power as a ball of solid iron of the same size. This gentleman has  
invented

invented a method of correcting the magnetic needle, on board of ships, when drawn out of the magnetic meridian by the iron of the ships. A shot of iron is placed abaft the compass of such dimensions, and at such a distance, as will ~~should~~ be formed by experiment to bring the needle back to the magnetic meridian.

For a particular account of Mr. Barlow's Correcting plate, see art. Variation of the needle, Edin. Ency. Also Bowditch's Navigation, page 119—Sixth Edition. An Essay on the same subject may be seen in Vol. 4<sup>th</sup>. Brande's Journal of Science, page 102, by William Bain.

The singular effects of rotation of bodies on magnets and other bodies, is given in the same Ency. under the art Science page 623 discovered by Mr. Christie. An iron plate made to revolve round an axis passing through the centre, acquires during its rapid motion, and possesses a power of producing a deviation in the magnetic needle. The subject has been taken up by Mr. Barlow; and he found that the rotation of a 13 inch shill in different directions produced opposite deviation

deviations of the needle. The subject is curious and demands the attention of the philosopher.

In my practice of magnetic surveying a similar effect has been observed when a four wheeled wagon was passing my instrument, though at a considerable distance; but I have found in some cases no effect from the carriage. Is this any way connected with the discovery of Mr. Christie?

The attraction of the needle by the iron in a Ship, and particularly an armed one, as well as one loaded with a cargo of iron, I have long supposed must materially effect the Compass by which the ship is steered; but it is only of late that I have seen any notice of this disturbing cause. Errors in dead reconing, have generally been attributed to currents in the ocean; but it is probable that these errors are more frequently the effect of the ~~{——}~~ of the iron in the ships on the needle, than the currents which are not with in long voyages.



## 6. Of the Improvements in Navigation.

Prior to the past use of Hadey's reflecting octant and Sextant in 1731, and the method of determining Longitude at Sea by the lunar method, the account of a Ship's way on the wide ocean, was very important, and a voyage round the Globe was considered a most adventurous undertaking. And truly it was so; for these voyages were attended with many disasters. The errors of the magnetic needle from the attraction of the iron of the ship, no doubt were ~~no~~ ~~doubt~~ the cause of some of the disasters which are detailed by voyagers.

The extraordinary error in the dead reconing of Commodore Anson's Ship the Centurion, in its rim from the straight of Le Maire to Cape Noir in 1741, must in some measure be attributed to this error of the needle, and not solely to the western current round Cape Horn, as was supposed. By the dead reconing the Centurion was supposed to have gained a westing of 10 degrees

of Longitude from Cape Noir, when in fact the ship was nearly in the meridian of that point; of course it must have been more than 330 geographic miles west of this point, if the reconing was true; and it is hardly to be supposed that the current could have set the ship that distance back, during the time of the run.

At the time of Anson's voyage, I believe the lunar mode of ascertaining Longitudes was not practiced, nor the method by chronometers, and therefore there was no exact means of connecting the dead reconing; and it appears that when the Centurion reached the Lat. of Juan Fernandez, so doubtful was her Long. that she steered for the coast of America to compare it with a known cape, which was the cause of the loss of a large number of the crew, by the scurvy, which then prevailed most severely on board. A good lunar would have saved these lives, and much loss of time, and brought the ship to its

destined port in that Island, at an earlier period.

The accuracy of keeping a ship's way, as now practiced, will appear from the following, taken from Burritt's Geography of the Heavens.

"Capt. Basil Hull of the Royal Navy, relates that he sailed from San Blas ~~on the~~ on the west coast of Mexico, and after a voyage of 8000 miles, occupying 89 days, arrived off Rio Janerio having in this interval passed through the pacific ocean, rounded Cape Horn, and crossed the south atlantic without making any land or seeing a single sail on the voyage Arriving within a few days sail of Rio, he took a set of lunar observations, to ascertain his true position and the bearing of the harbour, and shaped his course accordingly. "I have to" says he at 4 in the morning, till the day should break, and then bore up; for although it was hazy, we could see before us a couple of miles or so. About 8 o'clock it became so foggy that I did not like to stand in further and  
was

was just bring the ship to the wind again before sending the people to breakfast, when it suddenly cleared off, and I had the satisfaction of seeing the great sugar loaf rock, which stands on the side of the harbour's mouth, so nearly right ahead that we had not to alter our course above a point in order to hit the entrance of Rio. This was the first land we had seen for 3 months, after crossing so many seas, and being set backward and forwards by immeasurable currents and foul Winds.

This was certainly a very extraordinary landfall, and demonstrates the perfection to which navigation has arrived by the improvements of our time. Capt. Hull's ship must have passed over the same seas which were so embarrassing to Commodore Anson, and without other means their dead reconing, might have met with equal difficulties. With good chronometers several of which should be carefully kept on board, the Longitude may  
be

by relied on with equal certainty. But lunars should be taken in fair weather, to verify them.

Another improvement is the victualing the crews of ships, so as to avoid the scurvy, the bane of early navigations. Ships now circumnavigate the earth with scarcely the loss of a man, from this malady. Add to these improvements, the introduction of steam navigation, and it must be acknowledged that we have attained to an elevated degree of perfection, as relates to this branch of knowledge.

Dead Reckoning will still be important in navigation, especially in cloudy weather; but it will not be relied on when the ship's place can be determined by celestial observations. The invention of the Circle of Reflection by Mayer and its improvements by Borda, Troughton and Rios, have rendered observations for lunars, more accurate than by the octant and Sextant, and thoroughly enabled Navigators to determine their Longitude with still greater precision ~~accuracy~~. Let us not forget the benefits resulting from the effects of our Mathematicians & Philosophers.

7. Review of  
Narrative of the Campaigns of the  
British Army at Washington, Baltimore  
and New Orleans, in the years 1814 and 1815  
 by an officer who served in the Expedition.  
 1 Vol. octavo. pages 431.

This anonymous work has been republished at Philadelphia, and is considered more fair and candid than the generality of English publications which treat of America. What rank the writer sustained in the Army does not appear. As he had served several campaigns under Lord Wellington in Spain and France, he must have become well versed in his profession, and we think he discovers skill and good judgment in his accounts of the operations of the British army, though in some particulars he maybe a little inaccurate.

After a detail of the Battle at Bladensburg and the operations in the City of Washington, and the return of the Army to the Chesapeake, the author points out the errors committed by Americans in the defence of the Capitol, and during the march of the British Army to that City. He says "From

the beginning to the end of the affair, they [the Americans] acted in no instance like prudent or sagacious men. In the first place, they ought on no account to have risked a general action in an open country. however strong and steep; and secondly they deserved to suffer much more than they did, for permitting an enemy's army to penetrate beyond Noting ham." He finds no fault with us for permitting the British army to land, but says after it had landed, instead of concentrating our forces in one place we ought to have harassed the enemy with continual skirmishes; felled trees on each side and thrown them across the road & dug deep trenches at certain intervals: in short to have adopted the mode of warfare to which the habits, as well as the nature of the Country invited.

The following remarks are judicious. "In America, every man is a shot from his very boyhood, and every man serves in the militia; but to bring an army of raw militia—men, however excellent they might be as shots, into

a fair field against regular troops could end in nothing but defeat. When two lines oppose each other, very little depends upon the accuracy with which individuals take aim. It is then that the habit of acting in concert, the confidence which each man feels in his companions, and the rapidity and good order in which different movements can be executed are done of real service. But put these militia men into thick woods and send your regular troops to drive them out, you will immediately lose all the advantages of discipline, and reduce your battle to so many single combats.”

“Had the Americans, he continues, permitted us to advance as far as Notingham, then broken up the roads, and covered them with trees, it would have been impossible for us to a step beyond. As soon as this was affected, they might have skirmished with us in front, and kept our attention alive, with part of their troops while the rest, acquainted as they



doubtless were with every inch of the country, had got into our rear, and, by a singular mode of proceeding out of our retreat. Thus we should have been taken in a snare, from which we could not extricate ourselves, and should have been obliged, in all probability, to surrender at discretion.”

The next error of the Americans, and which the writer calls a “monstrous” one, was in not occupying the town of Bladensburg, with part of their forces. The brick houses of the place, the writer thinks, would have presented formidable obstructions to the march of the British Army, had they been well manned; and he finds fault with the disposition of our troops on the height beyond the town, there being no place in their line affording a single point where an enemy would be exposed to a cross fire. The Americans, he says, “were drawn up in their straight lines, like so many regiments upon a gala parade; while the guns were used as connecting links to a chain, being posted in the same order, by ones and twos, at

every interval.” In maintaining their position he thinks the Americans “exhabited neither skill nor resolution, and that no troops could behave worse than they did.”

Unacquainted as I am with the exact topography of the field of battle, it is impossible for me to judge nicely of the disposition of the American troops. There might have been errors in the formation. But judging from the numbers of the British killed, and the repulse of the light Brigade, on the first attack, we are not ready to admit with the writer, “that no troops could behave worse” Our militia broke and gave way before inferior numbers, it is true, but in this they acted as all undisciplined men will, when opposed by regular troops in open ground. where the opposing ~~troops~~ forces are nearly equal in numbers. The grand error was, as the writer has asserted, in risking a general battle on open ground.

An American who has supplied an appendix to the British Narrative attempts to show that the force of the

British instead of 4500 as rated by the British officer, was 9000, about the same as given of the Americans. But be this as it may, is certain that but a part of the British army was engaged in the action; and though the Americans were beaten it does not follow that they lack the spirit of soldiers, but only the discipline necessary to make them so. The following is the remark of the British officer on this point.

“Of the provincial courage of the Americans, there can be no doubt; they are, individually taken, as brave a nation as any in the world. But they are not soldiers; they have not the experience nor the habits of soldiers. It was the height of folly, therefore, to bring them into a situation where nothing except that experience and those habits will avail; and it is on this account that I repeat what I have already said, that the capture of Washington was more owing to the faults of the Americans themselves, than to any other cause.”

‡ The Americans, says the Narrative, rushed a battle with part of their army, when there was no necessity for it; in a word, they committed all those errors which men generally commit who are not soldiers & yet boast war.

In the defence of Baltimore the Narrative gives more skill to the Americans. They had thrown up strong lines; had increased their artillery and numbers, while the British force had diminished. But without the successful defence of fort McHenry, it is doubtful whether the British expedition would have failed of success‡.

From both of these expeditions we ought to learn a useful lesson. Our militia then, as well as now, were not competent to the defence of the country against disciplined regular troops, and should an other war occur while we rely on such a force, equal disasters will happen. The fault is not in the people but in the agents they entrust with their affairs. A due portion of our present militia properly organized and disciplined a few weeks annually in the field, subsisted and paid by government while so employed, would give a result very different in any future invasion; and until a plan of this

this kind is adopted for the U States, by Congress, we may think ourselves fortunate if we escape the horrors concomitant to a war with a powerful nation. Our present notions in regard to a national defence are absurd in the extreme & all those who rest secure under the present militia system, whether they know it or not, must be enemies to the welfare of the Country. We hope our leading men will open their eyes in season, to ward off the danger.

The British officer freely awards to the Americans personal courage, and if this were doubted, we should need no stronger proof of its reality than the excellent qualities of the Army, after time was given to discipline it, in the war of the revolution. The brave conduct of our navy in the late war is another proof in point. The truth is, with the same discipline as that of the British army, our troops would be equal to them in every particular. If our reputation as a military nation is now sinking, it is owing to the false notion that every man can be made a soldier by two

two or three days training annually,  
 under officers as little acquainted  
 with the art of war as themselves,  
 and this with no other pay than  
 the thanks of a tinselled ~~tasseled~~ receiving offi  
 cer, who in many instances, is igno  
 rant of the first lesson of discipline.

---

8. The Mirage

An instance of this phenomenon  
 is noticed in a late Salem Gazette  
 as seen by a number persons at the  
New Cove House near Phillips Beach  
 The south shore of Nahant was seen  
 upon the coast for leagues, appearing  
 to rise to a great height as if forming an  
 immense perpendicular sand cliff.  
 The phenomenon was very curious  
 representing most of forms mentioned  
 by writers on this [ ] appearance.  
 In Brewsters Letters on Natural  
 magic, may be found a good de  
 scription of the mirage and a vari  
 ous names, as well as in many  
 other philosophical works, and  
 the whole are explained by the princi  
 ple of Atmospheric refraction.

9. Height of Deerfield Et. Mountain  
by a trigonometrical operations.

A Base was taken in the South part of Deerfield Street, and the height of the mons. determined at each extremity.

As the base was level the results were very nearly the same at each end Viz. 711.19 feet. The top of a tree on the summit of the Mons. was used in the vertical angle, and of Course its height should be deducted from the above altitude.

The height of the same tree, deduced from a level base in the low grass meadow south of the street, was found to be 745,8 feet above the base.

By carrying a level from the meadow base to that in the street, the latter was found to be 21,84 feet above the former; hence it follows that in one of the operation there was a small error; but that in the street was considered the best result.

Mr. Charles O. Boutelle, a student in our Academy, was with me in the operations (an intelligent young man) and took the angles &c

10. Specimens of the Plants and Fruits  
of the Island of Cuba.

By A.K. Wollstoncraft—A Lady of  
Massachusetts, who died in that Island  
a few years since.

The Lady, I am informed, was a Daugh-  
ter of Kingsbury of Newton, and  
married to an English gentleman, Mr.  
Wollstoncraft. A brother of the famous  
lady of that name, well known in the  
Literary world. Of her Biography this is  
all that I have learned; but from  
the “Spinner” it would appear that  
she must have possessed genius for  
Botany, superior to most of her sex  
in this Country.

The work was kindly lent me by  
Miss Kingsbury, a sister of the writer  
who was on a visit to this town, &  
whom I am informed, possesses the  
genius of her sister.

The work is in manuscript, consisting  
of two Vols. The plates are good delin-  
eations, on a large size, chosen with  
her own hand, in all their appro-  
priate colours. In her description  
the plants are named and classed



according to the methods of Botanical writers, and rendered interesting from by her ingenious remarks and anecdotes. Of its merits as a Botanical work, I am not capable of correctly judging; for my acquaintance with the science of Botany is but slight;--merely what I have obtained by cursorily looking over treatises on the subject, without making it a favorite study.

In her description of the Choisent Pea (Aschynomca Grandiflora) the writer says "It may be that I have mistaken the genus, and species to which ~~the~~ Botanists have assigned it"; (the two which bears the flower) for without either Books to inform, or scientific friends to correct, it would be astonishing if I did not make many mistakes in the nomenclature, and in the artificial arrangements of plants, which have been presented to me, and their characters unfolded by nature only, without the slightest aid from scientific persons. The only existence I have had, either in collecting the plants which compose these volumes—in delimitating-or in describing

them, has come from slaves who knowing that I loved flowers, hoped a real for every one they brought me. During my life, I have ~~not~~ yet never had so much as a single con versation with a Botanist; much less a lesson from one. I describe the plants as I have found, or thought I found them. No aid from others has aided me. It must be therefore that my descriptions shall prove faulty. Yet I can affirm it is unavoidable, not willful efforts, that shall deface these pages”

If the writer is inaccurate in any particular, I think the above ought to be a full atonement.

In the description of Epidendma, which she names the Quaker flower, from its modest simple beauty. She says “I have been induced to call it by this name as it appears in happy emblem of the unassuming, humble yet interesting virtues of that amiable sect of Christians. I have had much less intercourse with this class of my Country men, than I could have desired; but fortune has  
often

often brought me in contact with them in travelling; and I can truly say that whether our acquaintance were longer or shorter, I never yet parted with one of them without sincere regret—particularly those of my own sex. I have invariably received from them that sweet, attentive, soothing kindness, which cannot fail to impress any heart, but one of stone or lead, with sentiments of tenderness, esteem and almost affection, though our acquaintance were only a few days.”

This I think a handsome eulogy; and from what I have seen of the well informed, among the Quakers. I should deem an appropriate one.

A printed edition of Mrs. Ws work would be expensive from the cost of the plates, and might not meet with a ready sale; but all Botanists, no doubt, would be gratified to see it come before the public in this form.

The study of Botany I think is an appropriate employment for intelligent females and it is to be regretted that more of them do not fill up their leisure hours in pursuing it. It not a difficult science.

### 11. Of Botany

In the last article in recommending the study of Botany for females, we have said it is not a difficult science. We mean to be understood as saying, it does not require that abstract reasoning which is necessary in mathematics & some other branches of science.

True it is, Botany is loaded with a technology rather tedious and to all it seems unnecessarily so; but while the mind is bright and the memory good, this may be overcome. Hence it appears that the study ought to be commenced while the pupil is young, or rather, before he becomes old and the memory treacherous. The terms once riveted in the mind, though not wholly understood, will enable the pupil to proceed with considerable success. But it appears to us that a system might be contrived better adapted to the understanding of the English scholar. Under its present form it is rather repulsive to such pupils. The consequence is that many or

most of these, neglect the study, and the knowledge of it is locked up with a few. Were it otherwise, many intelligent young people, whose employments lead them often to view plants in the field, would be able to give their aid in discoveries important in the science.

But it will be said that the science of Botany is intended to be general extending to all literary Countries, and that if each had its system in its own language, they would be too numerous, and that an Englishman could not understand a French system, nor a Frenchman an English one; and that the present system is in some measure understood by both. But admitting this to be true, could not Botany, in fact, be more extended say in the United States, by an English system, than it can be under the present?

Although the technical terms now used are the same in all learned Countries it will not, I believe, be pretended that an Englishman could understand a

a French work on the same, without an acquaintance with that language; Hence the science in different nations will, in some measure, remain distant until all the languages of ~~different~~ nations shall be reduced to one and the same which is not likely to take place. Much might be said on this subject.

In the present language of Botany however excellent it may be deemed, there appears to us, to be some singularities, or anomalies.

Thus, it is said the Calyx, or outer part of of a flower, is generally “not coloured” though in fact it is green; as the calix of the apple because it is green; but that of the nasturtion is coloured because it is not green. A strange use of terms. Why not say, a calyx is green when it is really so, and others are of such and such colours, as they partake of?

[     ]- Poisons are generally defined to be “any substance which in a particular manner damage the vital functions

See Eaton's  
Botany

and terminate mortally, if not counter acted". The following is the language of Botany. "Plants with 5 stamens and one pistil, with a dull coloured lurid colour, and a nauseous sickly smell, are always poisonous—as tobacco—thorn apple—henbane—nightshade. The degree of poison is diminished where the flower is brighter coloured and the smell is less nauseous—as potatoe is less poisonous, though of the same genus with night shade. Umbelliferans plants of the aquatic kind and of a nauseous sent, are always poisonous—as water hemlock—cow parsley—But if the smell be pleasant, and they grown in dry land, the are not poisonous—as found—dill coriander—sweet cicily.

Eatons }  
Botany }

Plants from which issues a milky juice on being broken, are poisonous, unless they bear compound flowers—as milkweed—dogbane—mine's contractor and Lactescentia."

Many plants possess some degree of the narcotic principle, which are still by no means hurtful."

To say that a plants is always poison

ous, and that in certain situations & a little variation of character, they are not poisonous, appears rather absurd. A plant is poisonous when it produces a poisonous effect; but to say it is poisonous, and at the same time harmless, is equally absurd.

The potatoe is ranked among the poisons perhaps for no other reason than it is of the same genus with night shade, a poisonous plant. Botanists may thus play with language; but the people of ~~almost~~ all countries, who constantly feed on this wholesome root will not believe that they are taking poison into their stomachs at their refreshments, though Botanists may assert it. When a plant actually produces a poisonous effect on animals, let it be called a poison, but if nourishing and harmless, let it have a different name.

In conclusion, we say, when botany can be made a popular study, it will be come useful; but while it remains under the lock of the linguist, it will be limited.



## 12. Military Etiquette and Dress

In a Boston paper of the 23d of Sept<sup>r</sup> we have the following—"Many inquiries have been made as to the military etiquette of a commander in Chief reviewing the troops in a citizen's dress. Governor Everett made his appearance on the Common last Wednesday, in a suit of black" In other words, His Excellency reviewed the Brigade of Light troops, on Boston Common, without the appropriate tinselled coat.

We are ready to admit that the citizens of Boston, in general, are men of discernment, and in some particulars, astute and eagle eyed; but as respect their notions of soldiers and military affairs, we have formed them generally as crude as the young boys who so eagerly follow the brass bands that promenade their streets at the head of their tinselled companies of counting house clerks, under the name of soldiers.

In the City, great stress is laid upon a military dress; no one can become a soldier without appearing

with his plumed cap, striped coat  
 and all the foppery of the [    ]  
 a dress fitted only to please Ladies  
 in a ballroom. This the prevailing  
 notion of those who are not soldiers  
 yet love the glittering show of war:  
 And what dependence may be  
 placed on such ~~show~~ is left to the  
 decision of officers of science & experience

As a specimen of the services of such troops in the  
 field, we give an anecdote of a corps  
 at the battle of Waterloo, as related  
 by James Simpson, in his Visit to Fland  
 ers and the ~~the~~ battle field. ~~of Waterloo.~~  
 “A very gay regiment of Gentlemen  
 lighthorse volunteers, were in the  
 battle, all inhabitants of a Continental  
 City which I shall not name. An op  
 portunity occurred for them to  
 charge the French Cavalry, and an  
 aid-de-camp came to them with an  
 order or request, to that effect, from  
 Lord Wellington. Their Colonial in  
 great surprise, objected the enemy’s  
 strength—their [    ];-- and the  
 consideration, which had undoubted

ly, he said, escaped the Commander in Chief, that his regiment were all gentlemen. This diverting response was carried back to Lord Wellington; who dispatched the messenger again to say, that if the gentlemen would take post upon an eminence, which he pointed out in the rear, they would have an excellent view of the battle; and he would leave the choice of a proper time to charge, entirely to their own sagacity and discretion, in which he had the fullest confidence! The Colonel actually thanked the aid-de-camp for this distinguished post of honor, and followed by his gallant train with their very high plumes was out of danger in a moment.”

The “sagacity and discretion” of these gentlemen soldiers, it is presumed kept them safely posted during the remainder of the battle. We dismiss the anecdote without comment.

The importance of a uniform dress for militia has been very much overexcited, and it is time that we should  
get

rid of an error which adds so much to the expence of the men. In the City Corps 100 dollars will hardly procure the fashionable dress, which answers no other purpose than to make a show, and lead to a false estimation of of the discipline of a corps.

Of what use can it be to lace up soldiers in buckram, and to ornament them-with red, white and yellow; cockades, feathers and sashes with out regard to convenience, or ~~and~~ adaptation to the service for which they are designed. Yet according to the opinion of some of our [\_\_\_\_], those and a few favorite ceremonies of parade, constitute the essentials of the soldier. And we frequently have it remarked of a corps, brought on to the parade with a due proportion of numbers ~~of hardy men~~ that it wants no thing but a uniform dress and hand some feathers, to render it complete for service; when its discipline at the same time, may be so imperfect that it cannot make a movement or parade adapted to a field of battle,

no

nor could resist the shock of an equal number of disciplined regulars for a moment, though in tattered & multifarious habiliments. For further remarks on this subject, see Chap. 8<sup>th</sup> of my Practical Instructions for Military Officers.

The unassuming dress of Gov. Everett at the review on Boston Common meets my approbation; and I hope it may serve as a useful lesson to our City corps of militia, as regards their extravagance in useless and empty gawgaws, so much the ton of the day.

From his former studious habits in civil life, it cannot be supposed that Gov. Everett has acquired deep knowledge of the Art of War. When he has applied himself to this art, as closely as he has to many other branches in the circle of science and joined practice to his study, he will better understand his new profession; & we doubt not, become convinced, that man bred up to the tender scenes of domestic life, cannot be relied on in the field unless they are in some degree, habituated to hardships of

the tented field and taught implicit and mechanical obedience to military orders. In the neglect of these important points his the error of our Boston friends whom we are ready to admit possess the spirit, but not the habits of soldiers.

---

### 13 Convention at Worcester (Mass.)

At a Convention of what is called the Whig Party at Worcester, on the 14<sup>th</sup> of September 1836, a number of Resolutions were passed expressive of the sense of the Convention in regard to the administration of General Jackson.

The Resolutions embrace heavy charges against his policy, and in some particulars I think them well founded. But without any predilections for General Jackson or his system, I am not certain that he deserved all the censure of the resolutions. At the time of his elevation to the Presidency, I was opposed to him on the ground of his incapacity for the office. His popularity I supposed was founded on his success in conducting ~~our~~

military forces at New Orleans, and against the Indians; and although these evinced that he was a brave man, I could not deem them a proof that he was fitted for a civil office, like that of the Presidency. His talents, however, I think are of a more elevated order than I had supposed; and his conduct, as respects the insane nullifiers of South Carolina, appears to me to have been highly commendable. In some other of his plans, I think he well deserves the censure of the resolutions.

The 2d Resolutions condemns the policy of the President in relation to the unjust and cruel conduct towards the remnant of the Indian tribes, in which I concur.

In the 3d the removal of the deposits is condemned as an arbitrary measure, calculated to introduce a vast system of corruption, which may undermine our Republican system. On this point it has been said the measure was unconstitutional, but of this I am not without some doubts. If it were clearly so, how happens it that [    ]

larger a majority of the people have submitted to it? As for myself I have not viewed it so fraught with distinction as has been represented; but have considered it as inexpedient; and aside from the hostility it evinced against the United States Bank, which appears to me important for our welfare, I considered the removal of the deposits as of no great consequence, provided the money could be safely ~~deposited~~ kept.

4th In the 4<sup>th</sup> Resolution the act for the distribution of the surplus revenue is noticed, with approbation, as the only remedy for this “corrupt and abominable system”. As respects this distribution of the public money I have some doubts of its utility. Are there not other objects of a public nature which call for its expenditure? Many might be mentioned, among these the defence of the nation is the most important, and the treasury of the U.S. should always be ready to furnish the sums that may be wanted on any emergency. The pay of a select mi



litia by Congress should not be forgotten, nor the increase of our navy. But if the present revenue is not wanted for these and other objects of a public nature, let the tariff be lowered, or limited to the wants of Government.

The 5<sup>th</sup> Resolution notices the late difficulty with the French Government, and expresses obligations to the Whig members of Congress for having saved the Country and its commerce from being plunged wantonly-and uselessly & unarmed into the inevitable losses of a war with France &c, when “all was in jeopardy from the hot brained rashness of the administration and its advisors.”

War is to be deprecated and avoided if possible; but they who rely on peace without the means of defence, rest on a broken staff. If we are unarmed and unprepared, where rests the fault? Undoubtedly on the Congress; and in this night the Whigs are as ~~remiss-negli~~ gent faulty as the friends of the administration. Among the various projects brought

before Congress, we see little in regard to a proper and efficient organization of the militia. Here all parties rest in perfect security, though in a war with England or France we should undoubtedly see a [ ] of the disgraceful operations at Bladensburg and Washington; and all our sea coast cities, would be at their mercy. This neglect of the government is not to be charged solely to the President; for at the commencement of the last session of Congress, he forcibly urged ~~an~~ attention to the subject of the militia, and suggested an appropriation of some of the surplus revenue to their discipline: and what could have been more proper and useful? But this suggestion was lost in the struggle of the parties in Congress, and we are still left without a land force competent to our defense.

In the dispute with France the President is charged with rashness and I think he went further than the occasion demanded. Situated as we were without a sufficient  
land

land force, prudence required that we should not be hasty in demanding satisfaction from so powerful a nation as France, when we were partly sure we could not enforce it. Once so long as Congress neighs to take the proper measures for arming and disciplining a portion of the militia, and fitting them for the field, we shall be under the necessity of cringing to foreign impositions.

But in this affair with France, it is doubtful whether a less decisive tone than was used by the President, would have brought her to comply with the terms of a treaty she had so outrageously infringed. Instead of wrangling about the language of the President, had Congress taken immediate steps to place us in a defensive posture, and permitted us to rest on our arms, until the French government had complied with the terms of the treaty we should not have sunk our military reputation to so low an ebb. We rejoice that the dispute was finally settled as it was; but we cannot

cannot avoid remarking that the steps taken by us, to effect that object, were rather degrading to a nation so powerful as we might be, under a proper system of military defence.

The war now raging in Texas is noticed in 6<sup>th</sup> resolution, and the conduct of our Government in regard to it, condemned. Here we are in accordance with the resolution.

In the 7<sup>th</sup> 8<sup>th</sup> & 9<sup>th</sup> Resolutions which express fear from executive encroachments on the constitution, we are not so alarmed as was the Convention. If the President is making strides & overleaping his power as conferred by the Constitution, why not impeach him and bring him to the test of a trial. If it he said this cannot be done because of his numerous supporters in Congress, then it would appear that his ~~protracted~~ strides are at least doubtful; for it is not to be believed that a majority of the members in both houses, chosen by the people of all parts of the

U. States, would support him against their interests—yes!-and their own

Mr. Van Buren's casting vote on the Bill for placing us under a gag law is noticed in the 11<sup>th</sup> Resolution. And in this we acknowledge he has displayed principles, hostile to the spirit of our republican government; and without atonement for this misstep we should be cautious in selecting him for a high office in our government.

In the nomination of Mr. Webster, in the 11<sup>th</sup> Resolution, we should concur provided it were possible to elect him; and we regret that he is not more generally supported in other States of the Union.

Let it not be supposed from the foregoing that we are friendly to the ~~{——}~~ of the [ ] administration of Genl. Jackson. That he has erred in many points is obvious, and in none, we think more than in his hostility to the Bank of the United States. Then in our

view, is essentially necessary for transacting business in various parts of the United States; and if abolished, we think not many years will elapse before Congress will be compelled to resort to a similar institution, for the people will demand it of them.

The fears that are entertained from assumed power in the President appears to us to be groundless. So long as the union consists of 24 sovereignities so widely spread over an extensive Country, there can be little danger from this source. However popular a President may be at the commencement of his administration if he sanctions measures detrimental to the states, or to a large portion of them, he will lose his popularity; and instead of complying with the laws of Congress which operate against state interests, the consequence will be to bring about a dissolution of the Union: And here, it appears to us his own greatest danger. If a corrupt President had at his beck a larger standing army the case might be different. The

The party styling themselves Whigs find fault with antimasons, who are unfriendly to Genl. Jackson's administration, for neglecting to support their measures. They should remember, when masonry was first assailed for its murder of Morgan and other atrocious acts, and when masons were pouring out their vengeance upon all who dared to question the purity of their institution Whigs stood aloof, or, in many instance, joined in the Masonic vituperations against anit-masons; and in some instances they were as abusive as masons themselves.

This has created, on the part of Anti masons, suspicions of the rectitude of such Whigs; and they may look to themselves for this break of confidence. This perhaps will be called undue prejudice which ought now to be eradicated. ~~Let~~ Those who have felt the malignant censure of these marked friends of masonry, ~~and~~ who offer no excuse for their singular conduct will judge of the motives of these pretended patriots. Such inveteracy is not to be winked out of sight.

14 The American Almanac or  
Repository of Useful Knowledge for 1836

This work is published annually in Boston, and the present is the 7<sup>th</sup> No. It is divided into two parts, the first containing the Calendar, the other the miscellaneous Department, embracing the Statistics of the U States and Europe. The astronomical calculations by Mr. Paine of Boston.

Since our Federal, as well as the State Governments, neglect to establish an astronomical observatories for the benefit of astronomical science, we are gratified to find that individuals, who see the importance of this knowledge, and are desirous of warding off the disgrace which is attached to such neglect, are willing to exert their talents in reclaiming the country from such imputation.

The work before us contains 324 pages, besides 12 of preliminary observations, preface and table of contents, and is somewhat on the plan  
of



of the English Nautical Almanac. Each month contains two pages and with an Ephemeris, table of the apparent places of 30 principal Stars according to Bessel, and others embracing refraction and parallax, give room for much important matter. The work also embraces a table of the Eclipses of Jupiters satellites, occultation & the Latitudes and Longitudes of places within the U.S.

The Calendar is important for the astronomical student and the Statist will receive much aid from the part relating to his employments.

Though the work in its present form must be attended with considerable expense, we hope the patronage of the public will enable the publisher to enlarge the future numbers with additional astronomical matter.

An extension of the [ ] observations, is wanted for young astronomers; and we would recommend the following additions to the final part. Viz. In the table of R.A. of the Stars, a few of the largest ~~stars~~

in Ursa Major and Cassiopeia to be included. A table of the sun's Longitude and R.A. and of the moon's semi diameter and passage of the meridian. A few problems in practical astronomy, particularly such as relate to finding Latitude, and Longitude by chronometers, meridians and the variation of the magnetic needle. A short notice of some of the last astronomical instruments, with their prices, would be useful to students in astronomy, and to surveyors. our object in recommending these additions to the almanac, is to render it more useful to those who make observations on land, like the nautical almanac for seamen on the Ocean.

The almanac in its present form is valuable, and its price, 75 cents, low; and all inquiring young men and especially those who have a taste for astronomy should place it among their books. One hint of

Mr.

Mr. Paine, in his preliminary observations, applies to our state and Federal Governments. Noticing the efforts making in Europe for a more critical knowledge of the tides, he says, "It is a source of deep regret that their Savans will not probably find any co-laborers in this country. Possessed as we are of an immense sea coast, and the second commercial nation on earth, it would seem that an accurate knowledge of the causes of the tides would be unto us of the highest importance; but there is too much reason to fear that we shall do no more to advance this great work than we have done for astronomy in general, Viz. to declare ourselves the most enlightened people ever in existence, to fold our arms and continue to be indebted to the noble nation from which we descend for their Nautical Almanac, without which hardly an American ship would go to Sea." For on previous remarks on the subject, see article 3d, page 5<sup>th</sup> in Sketch book No. 2. Also page 168 of No. 3.

15     The Weather

In our last remarks under this head September 7, we noticed a severe frost which we supposed must have done much damage to the crops of Indian and Broom corn. The damage was not so great as we had anticipated, both crops however are injured, and we believe in some places nearly destroyed.

Most of the month, following the frost, proved warm, in some instances the thermometer up to 90°, and though many of the leaves of the broom crop were killed, the tops of the corn in many instances shot up and headed out and healthy leaves appeared above those that were dry. The crop may therefore afford a pretty good yield. Some of the late Indian Corn may be damaged, and the ears have been observed to be defective. At this time Sept. 30, the weather begins to exhibit the usual temperature of the fall, though no severe frosts have occurred since that of the 6<sup>th</sup> instant

excepting on the night of the 29<sup>th</sup>  
 when a pretty severe one occurred.  
 Which probably has completed the ru  
 in of the crop of Broom corn previously  
 injured, if not destroyed & very much  
 damaged the late crops of Indian Corn

Some of our workmen employed in cutting  
 grass in a low situation, on the morning of the 30<sup>th</sup>  
 inform me that they found ice on the heel  
 of their sythes, in considerable quantity,  
 though none was perceived on objects  
 some height above the surface: a proof  
 of the correctness of the theory of Dr. Wells  
 as noticed in Art 1 of this No. page 1.

From this and other facts which have  
 been observed, I think the theory of the Dr.  
 probable; and if it can be shown that  
 the radiation of heat from low situa  
 tions, is more copious than from those  
 which are higher, we may account for  
 the phenomena of our early frosts.  
 Could any means be devised to pre  
 vent this radiation, we might save our  
 crops. To cover whole fields with a screen  
 would be too expensive, and not other oc  
 curs to me. But in small gardens it may be used.

16     Military Parade of the Independent Corps of the 2d Briaged 4D of Militia.

This parade took place on the 5<sup>th</sup> of October, at Bloody Brook, at which Governor Everett and his [    ] & adjutant Genl were present. The day was rainy & attended by a NE wind, which marred the pleasure our young men had anticipated.

Excepting the usual movements at a review, no attempts were made to display skill in tactics; nor is it supposed that any correct movements could have been performed, as the several companies perform differently on their usual company parades and want time to learn first lessons.

The troops are generally young men, possessed of the spirit of soldiers but little of their habits. By encamping them in the field two three weeks annually, with the necessary equipage, subsistence and moderate pay, they would learn

learn something of their duty, and be prepared to enter upon higher instruction when called into actual service; and thought they might not be able to cope with standing troops in open ground, they would soon present a respectable front, in which a commander would feel some confidence.

To introduce a regular system of discipline and give the requisite instruction officers Inspectors should be provided by the state who should visit the annual camps. These Inspectors to be thorough disciplinarians and versed in all the principles and practices of war, as well as engineering. Such might be found among the graduates of the school at West-point.

When Congress, or the state Legislature, shall adopt a plan of this kind, our militia will be placed on a respectable foundation, and competent men will be found to command them. Then our defence would no longer excite the sneers of the regular tactician nor the contempt of men of discernment.

## 17 Steam Carriages

Some exertions were made in England, in 1787, for driving steam Carriages, but the object was not completed until 1811 on a rail way. In 1802 Messers Trevithick & Vivian invented their high pressure engine, and in 1805 it was actually applied to the experiment of moving carriages on a rail way at Merthyr Tydfil. But it was not till 1811 that the first steam carriage was actually used for practical purposes. This was done by Mr. Blinkinsop who introduced steam coal wagons on his rail way. Since that time improvements have been made, and they are now extensively used.

But it appears that Oliver Evans an ingenious mechanic of Philadelphia, had turned his mind to this subject at an earlier date, and in 1804, he transported a large flat or scow from the place



where it was built, to the Schuylkill, on wheels, with a steam engine & afterwards descended that river to 14 or 15 miles, in presence of numerous spectators by the same power.

Mr. Evans projected several plans of working wagons on smooth roads, and obtained patents from Pennsylvania and Maryland for the purpose; but being unable to construct his engines without the assistance of gentlemen of property, he failed of success.

In 1813 he predicted the future success of steam transportation, both on land and water, and lived to see his predictions verified in part. Had he been encouraged and aided there is little doubt that he would have given the honor of the first steam boat to the Delaware, when the proud Swan of the Hudson must have glided along its surface with the unfledged wings of the humble cygnet. The Delaware as have met not without its mud; for the first steam boat, though imperfect was ~~first~~ launched on its broad surface.

### 18 Method of tracing a Line of Latitude

When extensive tracts of country, such as kingdoms, states and counties, are bounded on lines of latitude and it becomes necessary to fix their boundaries great care is necessary in the process; nor is it easily performed without very nice instruments.

Two modes are commonly adopted. One by tracing a great circle on the earth, and setting off, on a meridian the calculated distance between the circle and the parallel; the other by tracing a Guide Line with a good magnetic instrument, and then determining the latitude of its extremity and correcting north or south, into the latitude.

The latter would be accurate if the latitude could be determined with precision; but with all possible care this will remain a little doubtful, for our second of error in the observation for the latitude will produce upwards of 100

feet

feet of departure from the parallel, and with the best sector the zenith distances can rarely be determined with greater [ ] Hence then all lines of Latitude thus traced must be of a zig-zag form, though perhaps not greatly variant from the true curve.

The method by tracing a great circle and setting off into the latitude appears to me to be more accurate. In the operation there is no difficulty in following the curve which is always in the prime vertical, and if the distance run be measured horizontally, or nearly so, the requisite data for calculating the offset will be obtained.

The following problem in astronomy will serve for the solution ---The sun's place in the ecliptic, or his longitude, and greatest declination given to find his declination at a given time. Viz. Rad.: Sin Suns Long.: Sin. of the greatest declination (or obliquity of the ecliptic)" the sine of required declination.

Suppose it is required to trace the

parallel of  $42^\circ$  of Lat. to the westward  
 A meridian line is first drawn  
 with minute exactness, and a ~~large~~  
prime vertical traced westward by  
 a transit, or other accurate instrument  
 perpendicular objects being created  
 at suitable distances on the line. Sup  
 pose the distance measured to be 20 miles,  
 This line, or curve, continued  $90^\circ$  west  
 Long. from the place of departure will  
 intersect the equator and form a spher  
 ic triangle whose  $\angle$  at the intersection  
~~of the equator~~ will = the Lat. of the obser  
 vatory, or  $42^\circ$ . The distance of the ob  
 servatory from the intersection of the  
 equator will be  $90^\circ - 20' = 89^\circ - 40'$  - and  
 the [ ] is as follows.

Radius	10,000000
:Sine $89^\circ - 40'$ (or Log)	9,999993
::Sine of $42^\circ$ (or Lat)	<u>9,825511</u>
:8.41' -59' -57"	+19,825504

Then  $42^\circ - 44.59' - 57'' = 3$  seconds, the  
 distance south of the parallel=  
 303 feet (nearly) This distance set off  
 on a meridian (to the north) will meet

the parallel at the termination of 20 geographical miles, which measure we have chosen for simplicity in the calculation.

The same great circle may be continued, or another traced from a 2d observatory, and a similar process followed. Other points may be found on the curves of the Latitude, by similar processes; or if the Line back be corrected by similar triangles with a good compass; the errors will be small.

In the Logarithmic calculations it may be necessary to use tables of 8 or 10 places of figures to detect the small differences. Taylor's tables will be found useful for the purpose.

The state of Pennsylvania is bounded north and south on parallels of latitude and on the west, by a line of longitude, 5° west, of the southeast corner on Delaware river. Most of the south line was traced by Messers Mason and Dixon, by offsets from a great circle into the parallel of latitude, and the extent west was determined by observations on the eclipses of Jupiters satellites.

The southwest angle being thus ascertained a transit line was carried North to Lake Erie, by Andrew Ellicott and others. The north Line was carried west from the Delaware on the parallel of  $42^{\circ}$  N Lat. by determining points on the line from zenith distances of stars, taken with a large sector, and the lines between the observations run by the compass. From the well known astronomical skill ~~employed~~ of the gentlemen employed on the boundaries, among whom, besides Mr. Ellicott, were Dr. Ewing, Mr. Rittenhouse Mr. Lukins and Mr. Hutchins, it is presumed the limits of the state have been accurately determined.

The south line of the state is bounded by the Lat.  $39^{\circ}43'18''$  N commonly called Mason's & Dixon's line. These gentlemen measured a degree of Lat in Pennsylvania, on a pretty level surface, and found it to be 363786 British standard feet.

Several of the southern states are bounded partially on parallels of

Latitude, but whether their limits have been settled by astronomical observations. I am not informed.

Part of Massachusetts was originally bounded on parallels of latitude; but having been inaccurately traced in its early settlement, the bounds have been partially settled by the old improvements, without much regard to the latitudes. The geodesic survey now making will probably prove that they vary considerably from the lines of the original charters. On the north it is probably the line is not very correct. Excepting the western line, which was run by a transit instrument, the surveys have been made with the common compass. On the south between the Connecticut and the NE angle of the state of Connecticut, the line has been recently run with considerable care, and the local attractions of the needle allowed for; but in some instances old improvements were regarded rather than the parallel of the original charter. The line is now designated by permanent boundaries.

## 19 The Weather

Since the frost of the 29 of September last, there have been several severe ones, and the weather continues cool. At this time, Oct. 10, the high grounds in the towns of Hallifax and Whightingham and others in that quarter, are covered with snow several inches in depth, and wear the aspect of winter. Our summer has been too cool for the crop of Indian corn, and it is but sparingly ripened, and undoubtedly there will be a scarcity of this article. Some crops of broom corn are nearly destroyed, especially on the low grounds.

Should these cold seasons continue we shall be compelled to change some of our crops for those that require less heat to ripen. A variety of Indian corn is raised in our hill and northern towns, which ripens early and is said to be as productive as ours. Probably we shall have an early winter and whether our climate is undergoing a permanent change, is to be seen.

The



The indications of an early winter still continue on the morning of the 12<sup>th</sup> of October.

our valley was ~~seen~~ covered with snow, attended with rain & a cold northerly wind, and all nature puts on a dreary aspect. Rarely has such weather occurred, in our Latitude, in the month of October.

If it be true that the northern hemisphere is becoming colder, as several European writers aver, it is a question whether there is reasonable hopes of an amendment. If the present deterioration is owing to an accumulation of polar ice, it would appear that our temperature must continue to decrease. But may there not be counteracting causes to this increase of ice? Had it been accumulating from the commencement of the world, and it be admitted that this effects our climate as is supposed, long before this time we should have become a mass of frost and vegetation extinct. But as this is not the case, we may conclude there are

counteracting causes to such accumulation. Suppose for a period of years the northern ice should by slow increments, extend over the northern seas, would not heavy storms acting on the ice, at length break it away from the land & above the coasts of the frigid region? If we can believe the accounts of some of the Northern Whalers this has actually happened within 18 or 20 years. East Greenland had been inaccessible for a long period, and hardly visible to ships in the adjacent seas; but about 1816 it was found that the ice had suffered a great decrease, about 2000 square leagues disappeared and left the coast visible, & ice islands were seen as far south as  $42^{\circ}$  S. Latitude‡ and may have had some effect on the temperature of the summer that year.

There may be other counteracting causes beyond our ken: And when we consider that the Earth is filled

---

‡Brandes Journal of Science, Vol 4, p. 286

with inhabitants, with adaptations for their support, we may safely rely on that infinite power which framed the vast machine of the Universe, for a continuance of these adaptations; & rest assured that man will find a comfortable residence, whenever he may be placed on the globe, provided he makes due use of the means this power has placed in his hands.

If the crop of Indian Corn will not ripen in our climate, we must change it for others that are adapted to it; and that this is not an indispensable article is evident from the fact, that the northern Countries of Europe do not cultivate it, yet abound in other farinaceous crops, which furnish ample bread stuffs for the inhabitants.

---

20 The Franklin Mercury's Notice of the Bloody Brook Muster.

Though it was always rather sickening to notice the fulsome praise bestowed on the performances of our militia on field days, by editors  
of

of newspapers, the time was when this might pass as the only reward they received from the public. Circumstances are now changed the men required to train by our laws, now receive a reasonable compensation for their services; something of real discipline is then expected from our corps raised at large. We would not find fault with these editors provided they would extend their praise to the spirit of the men, without applaud their discipline. But When they talk of of this “novel and picturesque uniform of their accurate evolutions and perfect discipline” it is empty declamation disgusting to every judge of the military art for neither their dress nor their discipline is fitted to the martial fields.

If this declamation were under stood in no other light we would let it pass for its worth. But we object to it, because it has an injurious effect on that part of

The

the public who are ignorant of military science, and because it tends to perpetuate the present notions, entertained by many, that militia men, dressed out in military baubles are fit for the field of battle—a gross error!

We would bestow due praise on our training corps ~~revised at large~~ for the spirit they exhibit on their parades, and express our regret that the government do not see the necessity of encamping them annually in the field, two or three weeks, to enable them to learn such discipline as would render them efficient. The present plan of having them two or three days, or rather half days annually, is idle, if not useless, and their pay is little better than lost to the public.

The Cavalry are said to have made an excellent appearance. They did so; but not as a military body. they possess the spirit but not the habits nor discipline, to render them better than other mounted men among the spectators.

This species of troops might be dispensed with, in the militia, in time of peace; and at the commencement of a war a corps raised by government, suitable horses being furnished. The editor has neglected to notice the Artillery companies, four of which were on the ground with 8 field pieces. These corps are generally composed of the best men found in the militia, and could officers be provided who are capable and fond of the study of military mathematics, they would be valuable. In an annual camp under good military inspectors, they might learn much of their duty.

Gov. Everett is said to have addressed the troops in his usual felicitous manner. We are grateful to see him turning his attention to the subject of a militia, and affording his personal services on parade. But from some sentiments he has ~~given~~ dropped on various public occasions, we are apprehensive

prehensive that he is desirous of restoring the old system of training the whole of the enrolled men, those which nothing could be more ruinous. Let the corps raised at large be filled up to the proper numbers culled into camps of instruction annually, and a similar plan carried through all the states; and we shall at all times be ready to present a formidable body to an invading army, ~~and~~ whose services may be relied on until a regular army may be raised by government to take the plans of this state body.

Should Gov. Everett be instrumental in establishing such a system, he will justly merit the thanks of the patriot and the applause of his country, and honorable men would be found to accept commissions not in a "derided" but an elevated, efficient and respectable militia, which could command the esteem of foreign nations who now smile at our insanity and pity our weakness.

## 25 Visit to Bemis Heights.

Being at Boston in 1825, I met with Samuel L. Knapp, the Editor of the Boston Monthly magazine, and in conversation upon his plan he requested that I would furnish an article for the work. As I had made several tours into the State of New-York and visited the old Battle Grounds between Stillwater and Lakes George and Champlain, and taken notes of the most interesting military operations in that quarter, I agreed to furnish Mr. Knapp with a few extracts, and he inserted them in his March No. 10, Vol. 1.

As I have generally found to be the case with all manuscript pieces offered to printers, many press errors have crept in, and in these extracts several are found. As I have considerable confidence in the general correctness of statements there made, I am desirous of correcting the few errors which appear, though they are principally misnomers, and do not effect the sense. the following is a list:



Page 508, tenth Line from bottom, for Grenadiers read Guns.

509, line 14 from bot. for when read van

510. line 4 from top, for Harmage read Harnage

Same page, line 18 from bot. for covered read carried.

511, line 19 from bot. for have read here.

512, line 7 from top, for west read crest

513, line 14 from top, for pass read press

Same page, line 6 from bot. for Lemons read Lampson's

Same do, line 4 from do. for Butterkill read Battenkill.

514, line 17 from top, for recruiting read recontering or reentrant.

515 line 13 from top, after Morgan's insert corps

516, line 2 from top for Butterkill read Bat tinkill. See the Vol. in my Library.

By reference to the plans in my manuscript History of the Northern Campaign in 1777,

my traverse over the battlefields may be followed. My Companion on the tour, was Rev. Preserved Smith of Rowe who shared in the battle of the 7<sup>th</sup> of October 1777 now deceased-educated afterwards, I believe, at Brown University Rhode Island.

In my various visits to these battle fields,

with Gen. Burgoyne's plans in my hand, I think I have obtained a pretty accurate knowledge of the positions and movements of the American & British troops in the two actions of the 19 September and 7<sup>th</sup> of October. The Original plans were drawn by one of Burgoyne's Engineers and the topography is well delineated. Where the positions of the Americans were faulty they have been corrected from information obtained from officers who were in the engagements. The late Gov. Brooks who was Lt. Col. of Jackson's regiment and commanded it in the absence of the Col. examined the copies of my plans, and afforded me useful aid in my details of the battles.

Without monuments to mark the grounds they will be lost to future generations. This ought not to be.

---

## 22 Isometrical Perspective

This new system has recently been brought into practice and is believed to be more simple and useful ~~than~~ than the common system laid down in our Books, in which the representa

tion of objects do not appear correct unless the eye be placed in the point of sight and at a proper distance. Thus in a cube the lines are made unequal, but in the isometrical they are drawn equal, and all right angles are represented either by 60 or 120 degrees and the scale used may be applied to all parts.

In the representation of complex machines this is an excellent method of delineating them, and is now used for that purpose, in preference to the old system. To an eye habituated to the latter, the drawing may, at first, appear in correct, especially when large objects are represented; this however soon vanishes, and all parts appear very neutral. The only difficulty is in draw curves, but even these are more easily marked than in the old system

The term Isometrical or [ ] is chosen from the like planes, used in the delineations: perhaps the term rectangular or parallel perspective would have been equally appropriate; the latter has been used in what is called military perspective and used in representing small

fortifications, and their parts  
 Several of the figures in the plates  
 representing steam Engines, in the Eden  
 burgh Encyclopedia are drawn by  
 the isometrical method, but no  
 account is given of the method in that  
 work. The Gregory's mathematics for  
 Practical men, may be found a short  
 Essay on this perspective, by Professor  
 Farish; but it wants elucidation.  
 The same work mentions that a  
Mr. Jopling of England, was printing  
 a small treatise on the subject, for  
 the use of mechanics and artisans  
 (in 1833)

---

23 Autumnal Fevers.                      1836  
 Forty or fifty years ago these fevers were  
 very common, particularly in our val  
 ly; but of late they have become  
 much less frequent, and yet the  
 hill towns are more subject to them  
 than those on the Connecticut.  
 From accounts from various  
 parts of the country, it appears that  
 these ~~fevers~~ are more prevalent this

autumn than is common, though we believe but a few cases in our valley. In a letter from my son Arthur dated Bangor Maine Oct. 8<sup>th</sup> he states that he and his assistants on the rail road at that place, have had a touch of the fever, and that one of them was confined to his quarters 25 days—the others but 5 or 6— In general flat and marshy situations are supposed most liable to fevers during the Autumnal months, but this does not hold true after they are thoroughly cultivated. But Physicians do not exactly agree as to the cause. Most however are of the opinion that they are produced by miasmata from stagnant waters and morasses & that deleterious gasses rise from these and contaminate the atmosphere.

In a paper inserted in the Transactions of the American Philosophical Society in 1799, written by Dr. William Currie, he endeavors to show by experiments that these miasmata do not immediately or directly, affect the health of the inhabitants; but that they extract, or lessen, the quantity of the

oxygen of the atmosphere the following are his words

“From the facts and observations which have been stated, I think it may fairly be concluded, that the causes of the unwholesomeness of low and moist situations in the summer and autumnal months, is not owing to any invisible miasmata or noxious effluvia, which issue from the soil and lurk in the air, but to a very different cause, viz. to a deficiency of the oxygenous portion of the atmosphere in such situations, in consequence of vegetable and animal putrefaction in conjunction with the exhausting and debilitating heat of the days, and the sedative power of the cold and damp air of the nights.”

“For want of the refreshing & salutary stimulus of pure air, all the functions of the body are performed imperfectly and languished ly. The nervous system in particular, becomes preternaturally susceptible

ible of impressions from every change that occurs in the temperature of the surrounding atmosphere. The application of, or exposure to, a damper and colder state of the air than usual, renders the vessels on the surface of the body powerless, and atonic, the brain and heart sympathise with the extreme nerves and vessels, the power of every function of the body declines, till the heart roused by accumulating blood reacts with increasing ~~force~~ velocity, and is relieved of the unusual [     ].”

The distinction here made by the writer appears to me to be not very important. If the miasmata are in fact harmless in their direct effect on the body, and yet render the atmosphere unhealthy by extracting its oxygen, it appears to me no absurdity to say they are the cause of the diseases which follow their operation. Suppose a plant to be harmless until acted upon by some gas as exhalation from the earth, and then to become a rank poison to the human body who would hesitate to say the gas was

was the cause of the poison?

But without contesting this point the important question is how to remedy the evil. That clearing a new country of its woods, in latitudes not much higher ~~greater~~ than ours, will, at first produce fevers is generally admitted by physicians; and that cultivating them in a proper manner, will render them salubrious is also agreed. Dr Rush advises the planter in a new country, to clear no more lands than he can cultivate immediately, & that if he has wet grounds, to drain them, burn the vegetable matter on the surface and cover it with grass or other vegetables as soon as possible. While morasses remain covered with thick woods, he says the miasmata are not deleterious.

The cause of the fever mentioned in the letter of my son, probably was the opening of a wide passage several miles through a thick wood for a rail way and letting in the rays of the sun, by which the air was rendered



unhealthy by misasmata or diminution of its oxygen. Bangor is in Lat.  $44^{\circ}58'$  and is called a healthy place; but the woods in its vicinity must be subject in a degree when cleared off, to the effects of misasmata in other new countries.

The question why autumnal fevers are more prevalent in our season than another remains to be solved. Sudden changes from heat to cold, no doubt are predisposing causes, as is well known to be the case, with raw troops when encamped in the field in old or new countries.

The causes of many of our diseases may be beyond the human ken. Who for instance can tell whence the cholera which has recently travelled over most of the civilized world and swept the vast numbers to oblivion. We may conjecture but what of variations in the atmosphere, but the why and the wherefore may never appear. In short, science with its proud boastings, though in some particulars it has ascended to a high pinnacle, has in others but just entered the vestibule of the grand temple of nature

#### 24 Orthodox Efforts at Deerfield

A party styling themselves the orthodox church has recently been found in the Northern part of this town through the influence of the neighboring clergy, and for several months past some kind friends have furnished them with a set of preachers, so called whose chief object seems to be to restore the system of orthodoxy which had for many years been exploded by the majority of the people of this town. They it seems are constantly urging the unscriptural doctrine of the trinity, as a matter of great importance. Young men from Amherst College and others, highly inflated with the enthusiasm of that institution, are proving out their zeal with the hope of miraculously influencing the passions of the uninformed, and bringing them to their untenable system.

Yesterday, I am informed, one of these spiritual illuminus in unequivocal language, delivered from

the desk, that God actually died  
on the cross to redeem us from the ruin  
 ous situation into which we had fallen  
 by the disobedience of Adam & Eve, nearly  
 six thousand years previous to the time  
 in which we were born.

Considering the force of old errors, we  
 do not so much wonder at such audaci  
 ty, young enthusiasts as we do, that  
 men of common sense should be found  
 who have patience to listen to their  
 sacrilegious rant. But we trust that  
 small numbers will be found  
 among us, to assent to the horrible  
 doctrine that the infinite God of the  
 Universe was born of a woman—  
 accused, brought before a Roman  
 Court, condemned and actually put  
 to death on the cross!!!

Men who do not reflect, may be  
 lieve any thing, however, absurd,  
 or think they believe. We are told  
 that the doctrine of the trinity is a mys  
 tery, but that we must believe it  
 because it is found in the scripture  
 And on the other side say, it is not  
 to be believed because it is not to

be found in the scripture. If a few texts are found in our common versions ~~translations~~ which seems to favor the doctrine & hundred of an opposite purport are seen which in plain and positive language assert the contrary. We are told also that there are mysteries in natural philosophy and yet we believe them—True we do. We see for instance, that the magnetic pole by some unknown power, and we admit it; but if we are told that the needle assumes this direction, and at the same time it points in a different direction, we do not believe it; for it involves an absolute contradiction; and here is an important distinction which we should remember.

To us it appears, that so long as the elevation of the trinity is held to be essential to Christianity, men of enlightened minds will be slow in believing it.

If

If they can be induced to believe the distance is really to be found in the scriptures, the result, instead of producing a belief in it, them will be the rejection of the scriptures; for the same reason they would reject them should it be found that they denied the truth of ~~the~~ demonstrated propositions in geometry.

But we are now relieved from this absurdity, by the researches of a learned clergy and others, who have examined the subject, without the trammels of old systems. A religion is now propagated, which is not at war with science; and few enlightened men subscribe to the belief that the great God of the universe was executed on the Cross. Enthusiasm may rave and continue to alarm the uninformed; but it can no longer obfuscate the bright rays of truth, or hold in shackles minds that dare to think and examine, without the [ ] of the pretended spiritual masters.

## 25 Of Certainty and Belief

We often use these terms, or what I call their synonyms knowledge and opinion, without definite meaning: thus we say we know a thing when we only believe it; and that we believe it when we are certain of it. Certainly and belief are two distinct things. By the former we mean that we know a thing to be--; by belief that we are of opinion that it is true, but at the same time it may not be true.

Positive knowledge is derived from three sources

1<sup>st</sup> From Intuition or ~~which included is~~ what are called axioms, or self evident truths. As that the whole of a thing is equal to its parts; things equal to one and the same thing are equal to each other;  $1+1=2$  &c. These axioms, when the words by which they are expressed, are understood, strike

the mind as certain, and no train of reasoning can make them more obvious.

2d. Demonstration: or that proof of a proposition by a train of reasoning founded on axioms, which leaves no possible doubt; or in other words, cannot be other than true.

3d Seeing and touch. These I am aware have not been considered as certainty by all. But I think a sane man who sees and feels, is certain that the objects which produce these sensations ~~must~~ do exist. A person may indeed think he sees and feels, when he does not; but this cannot be so with sound organs & sane minds; and we are not considering any other. ~~being~~  
Knowledge derived from syllogisms we leave out of the question and they are believed to be of no great importance in determining truth.

All other knowledge amounts only to probability; but this may be such as to satisfy the mind beyond doubt; at the same time

it may, or may not be true.  
 Such is all historical and ~~legal~~  
 testimony; and in these the weight  
 {——} of evidence depends on the credi-  
 bility of the virtues or person making it,  
 and the matter of which they tes-  
 tify. When the thing asserted is  
 improbable or preternatural it  
 requires the testimony of many  
 intelligent and disinterested witnesses  
 to produce assent or belief. Thus  
 suppose one should assert that he  
 came to a River, and to pass it, he  
 set fire to the water and burnt  
 a passage, through which he  
 crossed on dry land. In such  
 case we should disbelieve him  
 even if he had heretofore been  
 deemed a man of strict veracity:  
 For we should say that it was  
 more probable that he was under  
 a mistake, meant to deceive, or  
 was insane, than that the thing  
 asserted was true. But I mean  
 not to say, that multiplied testi-  
 mony by others, to the same fact



who are disinterested and unconnected, as well as credible men would not be sufficient to produce belief; but that the testimony must be of the strongest kind to have this effect, and that it would still be only probability.

There is another kind of evidence which may produce assent/belief; as when we rely on testimony or assertions without seeing the truth of them from a belief that ~~that~~ honest men, without any inducement to deceive, and who are masters of their subject, make them. Then if a Newton, a LaPlace or a Bowditch say, they have demonstrated a proposition in mathematics which we are unable to trace, we believe they fully understand the subject‡ This may be called faith or reliance but we are not certain that what they have ~~have~~ told us is the truth. This only probability and all we can say is, that their proposition is true if they have demonstrated it. then we make use of the theorem

They

‡Lock calls this argument ad  
verecundiam

they have deduced, without know  
ing them to be mathematically  
 correct: and thus a great portion  
 of our Seamen, who determine their  
 longitude by the Lunar methods  
 laid down in their books, proceed  
 without ~~knowing~~ comprehending the principles on  
 which they are founded But in ‡

~~But~~ Out of mathematics, there are  
 many things incapable of demon  
 stration, which however admit of  
 proof sufficient to produce ~~the~~  
~~firmest~~ belief. Thus if the proof of  
 the existence of the Deity do not  
 amount to demonstration—yet  
 I think they came little short of  
 it; and no intelligent man who  
 has examined the machine of na  
 ture, can say he wants further  
 proof of this important truth.

Thus, though we cannot arrive  
 at absolute certainty in many prop  
 ositions, we may generally [     ]  
probability where there is truth, on which the mind  
 may rest satisfied. Hence we  
 may give credit to the accounts

handed

‡ in all cases in which propositions do not  
 admit of demonstration, this reliance should  
 be ~~taken~~ asserted with caution.

handed down to us by historians provided they are not preternatural; and where they are already so, it is proper that we should require higher proof of their truth than we do of ~~those of~~ common events; and here we must rest on probability.

The evidence of the truth of Christianity is historical, and rests on the same ground with other historical evidence, with this difference, that some of the facts connected with it are preternatural and therefore require stronger testimony, than common events, it can therefore amount only to probability; but the probability may be so strong as to produce firm belief.

The pretensions of some that they have received supernatural light from above yet cannot explain to us what it is, other than they have it because they believe they have it, I lay out of the question; for this ~~sort of~~ [—] impression is as strong in a Mahometan, or the Hindoo widow who burns herself

on the funeral pile of her dead husband, under the belief that her sacred books require this immolation, as it is in the greatest enthusiasm found among us. The probability is that these impressions are the workings of a heated or blind imagination, where correct reasoning and due assent, never were allowed a place.

Men may thus bewilder themselves and fancy they are inspired; but I believe few well balanced minds can be thus deceived. Set such, if they can lower the heart of their zeal, reflect that knowledge is not thus taken infused into the mind; that men are born with certain powers bestowed upon them by the creator, which if cultivated when they arrive at the age of sober reflection, will enable them to distinguish between right and wrong, truth and error; and that absolute certainty is not attainable in propositions  
that

that do not admit of intuition or demonstrative proofs. Let them examine the modes by which they arrive at belief in other subjects, and they will find that they use the same process of reasoning to arrive at their conclusions, as those who claim no aid from supernatural light.

the zealot in mathematics or natural philosophy, who suddenly hits up on some hidden truth, may with as much propriety claim the aid of supernatural light, as the zealot we have mentioned: for the principles of those sciences are not less the work of Deity than those of pure theology. In history of the sciences Men it is true have expressed themselves in terms of their own language, but the principles are not the work of their hands. Thus, for example, The sides of all plain triangles are in direct proportion to the sines of their opposite angles. This an eternal truth, man has couched it in his own language, but has not made or contrived it the principle he only applies

to his use, what the Deity fixed or established; and to say this proficity of the triangle is a human invention, is obviously erroneous.

The same may be said if the principles of astronomy, Chemistry and all other sciences which are founded on fixed ~~principles~~ laws May be his ingenuity discovers these laws but has no more hand in contriving them, than he has in the construction of the planets and the laws that give ~~them~~ their motions.

We have said that if the proof of the existence of Deity do not amount to demonstration, they are little short of it. We are rather inclined to consider them ~~intuitive~~ self evident than demonstrative. With the well informed they appear so, on the first view: they strike their minds with the force of axioms, and leave no doubt. True there are a few men who claim to be informed who

who deny the existence of the Deity:  
 but these I think have laid aside  
 common senses, and bewildered them  
 selves with subtleties, as absurd as those Bishop  
 Berkely when he laid it down  
 as a truth that the objects of sight  
 & touch are nothing but ideas in the mind  
 and who denied the existence of every  
 kind of matter whatever.

The principles of morals are thought  
 by some to be capable of demon  
 stration. To us it appears that some  
 of them, are rather intuitive than de  
 monstrative; but whatever mode  
 we follow to arrive at them, perhaps  
 it is enough that we are convinced of  
 their truth.

In what we have advanced above  
 we are not certain that we have  
 used clear expressions; but we believe  
 the principles are generally cor  
 rect. Our object is to enforce the im  
 portance of examining the truth of  
 propositions so far as they are ca  
 pable, rather than resting on the  
 faith of others.

26 Report of a Survey around the Falls of Niagara, with a view to the construction of a Ship Canal to connect the waters of Lakes Ontario & Erie, made in 1835, under the direction of Capt. W.G. Williams topographical Engineer.

His Report is comprised in a pamphlet of 75 pages, accompanied with 7 topographical plans and profiles, upon large scales.

The plan is to construct a ship or steam boat canal for the passage of these vessels, in case of war with Canada, and for commerce in time of peace. Several routes have been examined; one from the head of the falls, along the bank of the Niagara to Lewiston where it is to enter the river; others to the eastward; but on all the routes, the Lewiston Heights are to be passed, which will render the construction laborious and expensive. The first route is the shortest and probably would be the least expensive, but to me it appears



appears that in case of a war, it would be much exposed to annoyance from batteries erected on the Canada side. This consideration may render a more custom route profitable, and whether our government will consider the importance of such a passage worth the expense, is doubtful. The report suggests that in future wars on the lakes, steam wind vessels will be extensively used; but of this I have some doubts. These vessels can be used with great advantage in the transportation of baggage, provisions & men; but I can hardly believe it will be safe to convey gun powder in a vessel which requires so much fire to work it as a steam ship ~~boat~~. With all the precautions within the power of man, this sort of vessel will be exposed to the most fatal accidents when conveying the requisite quantity of gun power for a naval action. This, it appears to me, will for ever prevent an extensive use of steam vessels in naval warfare, other than for the

transportation of stores of a quality very different from gun powder.

One inducement for the project of this canal, is the construction of the welland canal on the British side, by which it is supposed they can convey their ships from the Ontario to lake Erie in case of a war. Suppose they can do this, will it give them any advantage over us? Will it not be necessary for them to keep a competent naval force on both lakes in time of war? and may not vessels built on the two lakes answer all the purposes.

For example Suppose the British to withdraw the whole or part of their naval force from Ontario, and carry it into Erie, by this canal, by what means are they to carry on operations in the former, or defend its shores. They might it is true, present a superior force on one lake but they would be inferior on the other, and what they might gain in the one case would be lost in the other. In short it appears that the advantages

to be obtained from a ship canal as is proposed, would not justify the expenses. Is it then important as connected with the commerce of the interior? Since the construction of the Mohawk and western canal, it appears that the commerce of the interior does not require the projected canal; for if it were completed, the principal trade of the interior would be carried on through the former, excepting that of the south shore of Ontario, and even this would be about as well accommodated by the present canal as by the projected one.

In [ ], all the advantages that might be gained by a ship canal are already within our reach.

If the present canal is insufficient for the transportation of the stores requisite in a war with Canada, would it not be wiser for the U.S. to aid or be a the whole expense of [ ] it, to answer that purpose; this it appears to me, would be strictly within the federal constitution. The report displays engineering science:

An algebraic formula is given for excavations in the slope of a hill, which is claimed to be new.

We notice a want of references to the plans and profiles accompanying the report, an omission which has become very common in late works, of many authors, who make use of diagrams for elucidation—Also a few expressions and turns which are somewhat peculiar to our west point school.

A plan is called an element (see page 9)

Speaking of the supposed advantages of a route, indicated upon the belief that it offered a more retired line of communication, ~~this~~

(page 91)

it is said, is a maxim that ought not to be overlooked—We should have said circumstance. The ~~devel~~ development of a plan is often used for what is commonly expressed by surface or extent. The expressions may not be very erroneous lest they appear to me to be rather French than English. other might be mentioned.

The

The descents in the Niagara River  
are given as follows

Falls of Nia gara	The rapids commencing about a mile above the main fall, about	52
	The main fall on Canada side	164
	There to Lewiston	103 ½
	Thence to L. Ontario	<u>2</u>
	Total feet	<u>321 ½</u>

The distance is stated at about 35 miles,  
from Lake to Lake.

In the plate which contains Niagara  
river, from the head of the falls to its  
outlet into Lake Ontario, a view of  
the country bordering on the river  
is given, according to the rules of per  
spective. This view embraces Lake  
Erie near Buffalo, and it is seen  
at the southern extremity. The su  
posed place of the observer is a  
high point over the Southern mar  
gin of Ontario at, or near, the mouth  
of the Niagara (a birds eye view)  
Views of this kind may be drawn  
from a topographical map, by assessing  
an elevated point, of a given height  
and deducing the lines and surfaces  
by trigonometrical calculations.

27 Florida War.

By our News-papers it appears that troops are assembling in Florida for another attempt on the Seminoles. a great portion of which are undisciplined militia; and whether they will be more successful than the same force were last year, is to be seen. Many of the regular corps stationed there during the summer, are said to have suffered severely with sickness, and indeed almost destroyed.

Gen. Jackson may boast of his success in his campaigns against these Indians, but I believe he at no time penetrated into their swamps south of the Withlacoochee, if so far nor met them on their even ground, or rather no ground. The present commander will find that all his skill will be called into requisition to force these wild fellows from their everglades, & may reap no more laurels than did Gen. Scott the last season, who was so severely censored.

The Indians may however be brought to terms in the course of the winter; but if it should turn out, otherwise, it would not be a strange result.

Gen. Scott we understand is to be brought to trial before a Court martial for his failure last year, and I think if the court is composed of real military judges, he will be honorably acquitted. Hard indeed would it be, if he is condemned for not sweeping the impenetrable swamps of that extensive region, with an undisciplined force: nay, with almost any force, at the time he advanced upon the invisible enemy. But the public voice has been loud against him and this may prostrate him. Commanders sometimes find no favor under such circumstances; and with our wild military notions, it is impossible to calculate results.

Last year the redoubtable Gen. Gaines, after marching from Tampa Bay to camp King, and thence “back again” to the Withlocooche, where he eat up

his hores and dogs as the only means of avoiding starvation, which his imprudent measures had brought upon him, boasted that he had ended the war on the peninsula; and not content with this exploit, condemned Gen. Scott for his tardy movements, and book tactics. Might it not be wise to appoint him Governor over his conquered territory, to adjust all difficulties with Osceola?

One fact in this war, cannot be kept out of sight, and that is, It is just on the part of the Indians. But having roused them to hostilities, there may be no other means to restore peace but to conquer them: if this be the case, effectual measure should be taken, without delay, to accomplish ~~effect~~ this object, and it is be regretted that we have not a disciplined force adequate to this service.

The war, unfortunate as it is, we hope will teach the United States a useful lesson. Viz- that to preserve peace we must be prepared for war.



28. Letter of Benjamin F. Hallett to Gov. Everett, May 17<sup>th</sup> 1836.

This letter we find in Mr. Hallett's advocate, of Oct. 18, 1836. It is inserted to show that assertions made in Hales Daily advertiser, touching the Gov. are not true. We give a few extracts. After noticing some appointments made by his Excellency, obnoxious to antimasons, Mr. Hallett says "I was personally deeply injured by your intimation that I had boasted of being in your confidence, which you represented as a source of complaint among your Whig supporters; but I never conjectured that you had so placed yourself in the power of the Whigs and discarded your antimasonic friends, as to preclude yourself from the appointment of any Antimason to office, unless he would support not only you, but your friend Mr. Webster" Again "I was not, however, aware of your determination to appoint none but Whigs to office, until in the conversation I had with you, by your request, in March last

you stated that you could not consistently nominate to office any antimason who was opposed to Mr. Webster and in favor of Mr. Van Buren, except the office of justice of the peace". He says he expressed his surprise, at this, to the Governor and said to him that "if such was to be your course, I wished an honorable discharge from our political connexion, on the ground that I could not support a man who considered me, and the whole political party, disenfranchised, for our opinions on the Presidency."

Mr. Hallett says the letter was received by the Gov. on 21<sup>st</sup> of March, and as he was about to go to Springfield to attend the centennial celebration, he had no time to answer it then.

No reply being received by Mr. H. as was expected, on the Governor's return, he addressed a second letter to him on the 2d of June, not he says to request a reply, but simply to apprise the Gov. that "I must feel at liberty to regard your silence as

admitting that I did not misapprehend the course you informed me your relations to Mr. Webster made it your duty to preserve" –as stated in his letter of March 17<sup>th</sup>. No reply from the Gov. Mr. H. states had been received up to the 17<sup>th</sup> of October.

Mr. H. cannot with propriety demand a reply, but if he has ~~mes~~ misstated facts and the Gov. remains silent under them we have a right to draw our inference and as he has made some appointments highly obnoxious to antimasons our inference cannot be favorable.

If he has in fact, gone over soul and body to our violent opposers, how can we consistently support him at the coming election?

For myself I regret that he has given suspensions of deserting the cause he once supported. That some masons who refused to vote for him for the office of Gov. are now much in his favor we are sure; and we could state some facts at which his Excellency might perhaps be a little surprised; but we with hold them for the present.

In his answer to a committee of Antimasons of the County of Middlesex, who had addressed him on the subject of Masonry, alluding to the letter of Mr. Wirt on the same subject he says, "The supremacy of the Laws, is the fundamental principle of civil society. The allegiance due to the Country, is the highest human obligation, of all men who enter into civil society; and I conceive the Institution of freemasonry, in its tendency, to be at war with both these principles.

And further "The forces of these objections is immeasurably increased by the fact, that within a few years, the institution has been actually made the instrument of the greatest (because [     ]) evil, which can be inflicted on society, the destruction of the life of a citizen! followed up by systematic and successful attempts to screen the murderers, in defiance of the most rigorous efforts, on the part of the tribunals, to bring them to justice." What could be more just than this plain declaration! He discovers

covers less discernment when he adds the following “When I reflect that Warren and Washington among the dead, and Marshal among the living; and numbers of pious, virtuous, and honorable men in the community around us, (some of whom I have the happiness to count among my personal friends) are members of the institution, I cordially adopt the sentiment of Mr. Wirt in reference to the same point, “both justice and prudence demand discrimination and that it would be an unjust prescription to involve [     ] and honor with guilt and treason! But how did Mr. Wirt reconcile this! He denied that this was the masonry of these men, and truly, for at the time they were initiated, there were only three steps in its temple and even they were very different from those of the present. The Chapter has since been introduced into this Country, and the higher degrees were then unknown; and was Mr. Everett ignorant of this, after he had seen the developments of numerous

masons in his own, as well as other  
 States? It cannot be! How then  
 could he pronounce men to be vir-  
 tuous and honorable, who rested un-  
 der the oaths of the higher orders,  
 and declined, or refused to abandon  
 them, as pernicious? He might as well  
 have told us of virtuous robbery or  
honorable murder. To the adherents  
 of these others we hesitate not to say  
 virtue and honor cannot be found  
 in juxtaposition with them; and si-  
 lence in their recipients, must cre-  
 ate suspicion and doubt; and  
 that, in the language of Mr. Wirt,  
 no man of common prudence can  
 sleep over the discoveries of the prac-  
 tical exhibition of masonry, we have  
 had in the State of New-York.”  
 No virtuous and honorable men  
 can justify the oaths of masonry, as  
 they have been given to the public;  
 nor can any rational man who  
 has examined the evidence of their  
 development, entertain doubts  
 that they are truly revealed to the  
 world

world, without putting at defiance  
 all human testimony. If any mason  
 adhered to them and deemed them to be  
 harmless, he must give up his claims  
 to virtue and honor, and bear the  
 frowns of good men. Some among them  
 I believe, are honorable men, but where  
 I find them entitled to this epithet I  
 am confident they are no friends  
 to the oaths of the Institution, nor the  
 admirers of its savage rites and ceremonies,  
 and that they would repudiate the im-  
 posture were they more humble in  
 opinion Silence must be ~~most~~ ~~be~~ con-  
 sidered as a sort of negative quantity in  
 summing up their virtues.

In conclusion, of Gov. Everett we say,  
 that with his high literary arguments,  
 his sound moral principles, and  
 winning deportment he may be wanting  
 in that firmness of purpose indispen-  
 sable in a chief magistrate of the State.  
 We do not, however, say that he is thus  
 wanting; but we are not without  
 fears that this may ultimately be  
 the conclusion of candid men.  
 “To err is human—to forgive Divine”<sup>1</sup>

---

<sup>1</sup> From an “Essay on Criticism” by Alexander Pope.

Oct }  
24th }

## 29 A meteor Observance at Deerfield

Last evening about 7 o'clock a number of people who were in our street, near the brick school house, saw a large meteor in rapid motion, bearing about west, at the height of the sun when about an hour high, as one then expressed to me, attended with a bright flash, and soon after a heavy report was heard from the same direction; which a lady in my house states, jarred the building. She however did not perceive a flash. One of the persons who saw it, estimated its dish at about the size of the crown of his hat.

An observer who was at Leyden about 10 miles north of us, states the meteor was seen at that place, in a direction southwest, and the report heard, like a clap of thunder, except the usual reverberation.

Was this an aerolite or a common meteor? If the former probably there must have been a fall of stones. We wait for more particulars from other places, westerly of us.                      The



The phenomena of this meteor were similar to those observed at Amherst in August 1819, as given by Rufus Graves Esqr. in the 2d Vol. of Silliman's Journal, p. 335, and that he says was attended with a report but instead of stones a gelatinous matter was found where it fell, resembling in form a sauce or salted dish bottom upwards, about eight inches diameter, the interior of which resembled good soft soap, of an offensive suffocating smell.

In all cases of these kind, which have fallen under my observation, no report has been heard; and I had supposed, that this never occurred unless ~~except~~ the meteor was an aerolite.

It should be mentioned that at the time the meteor was seen here, the sky was nearly over east with clouds; but I have not been informed that lightning or thunder was observed, and I perceived none myself, though sitting before a south window, with a lamp on my table. According to the theory of Professor Olmsted, this is about the season we are to look for meteors.

30. The Crop of Indian Corn

In the notice of the Frost that occurred on the 6<sup>th</sup> of September last (see page 1) we concluded that the crop was not materially damaged. Our people are now (Oct. 24<sup>th</sup>) gathering it, and it appears the conclusion we had made was erroneous. About one half of the ears are little advanced of the milk state, and the other half, imperfectly ripened. Probably the unripe part will not dry sufficiently for grinding into meal, and must be fed out to cattle and swine in its soft state. Of course the price of the sound part will be high, unless we are supplied from the southern states: Old corn at this time sells at 150 cents the bushel; on the seaboard I am informed the price is less, owing no doubt to the importation of southern cargoe. we are informed that snow had fallen in the State of New-York to the northward of Utica, to the depth of 16 or 18 inches, but had since nearly

dissolved. This day the weather very mild and pleasant and we can set comfortably without fires. Whence these changes? Certainly from other causes than the sun's influence. The declination of this body is now  $11^{\circ}52'44''$  south. and of course his meridian alt.  $35^{\circ}36'$  (nearly) Shall we then look to subterranean heat for these variations of temperature? This may be the true source, combined with the general influence of the sun; but we seek in vain for certainty, and must rest on probability. One thing however is certain; no one can predict the state of the weather at a given time.

---

### 31 Lecture on Electricity.

Last evening, art 25- a young man Mr. W.T. Giles delivered a lecture on this science in our brick school house.

The principles upon the hypotheses of two fluids, vitreous and resinous, were stated with considerable ingenuity and elucidated by an extensive apparatus; his machine of the plate kind. Several discharges were made

with Volta's electrical pistol, charged with inflammable air; the report was loud

The experiments to explain the rationale of lightning rods were the most in testing. The square piece of metal with rough angles, he prefers to the smooth cylindrical one, as more severe to defend a building against a lateral stroke; and thinks the size of a nail rod sufficient. Several he supposes are necessary for large buildings and they should be connected and carried into the ground in various places, and the ends pointed.

Some of his positions I thought doubtful. He asserted that a dead animal was a non conductor of electricity, while a live one was a good conductor. This seems at variance with all the electrical principles with which I have been conversant. Is the life of an animal the conductor instead of the body? I know not or what experiments he found the

the assertion; nor can I believe it to ~~believe it to be~~ be correct. The light of a flash of lightning he thinks is produced by inflaming a part of the air through which it passes, which appears very doubtful. He placed a rat in the circuit of his battery, and by a wire extended over him, both extremities in contact with his chain the charge passed without injuring him; but then being removed, and the rat made a part of the circuit, the shock instantly apparently killed him. His experiment was to show the safety of rods and that an animal would not be exposed though very near one. This may be true in small discharges; but with the quantity found in a shock of lightning, it may be otherwise. If the rod be of a small size, and the charge heavy, and especially if the rod is not carried well into the ground, where it is moist, the fluid may be directed from the rod, to other near conductors. This sometimes occurs.

Mr. Giles thinks a blacksmith's

shop filled with iron, is a safe place in a thunder shower; because the lightning, if it strikes it, will be so diffused as to pass off harmless. A quantity of smooth iron, without pointed terminations, will attract the lightning, but a small distance; and this he proved by an experiment; and if the iron is perfectly insulated, at some height from the ground, probably it would no more attract lightning than an equal bulk of wood.

Most or all of the experiments performed by Mr. Giles, might be explained upon the Franklinian system of positive and negative ~~and negative~~ electricity; and whether this, or the hypothesis of two fluids is true must be determined by further observations and discoveries.

On the whole, the lecture was useful to students in electricity; it was addressed to the reason rather than to the imagination, and though less attentive than those ~~those~~ we often hear was infinitely more beneficial.

## 32 Of the Spider

This curious Insect, as formerly called by Linnaeus, but now ranked under Crustacea has often attracted [ ] curiosity, by its ingenuity in spinning its web and taking its game, as well as its other curious properties.

In the latest works on natural History it is arranged as follows: under Crustaceology, a branch of zoology.

Class 2 Arachnides.

Order 1. Podosoma

Family 9. Araneidea

Spiders change their skins annually and the mode of weaving their nets with five teats or nipples at the extremity of their bodies, the appatures of which they can dilate or contract at pleasure. Through their holes they emit a gluey matter, which is contained in a bag communicating with the nipples. They attach the end of ~~the nipples are~~ of their threads by applying their nipples to any substance and the threads are lengthened as the

animal recedes from it, and immediately hardened by exposure to the air. They can stop the spinning by contracting the nipples and ~~can~~ ascend the cord they have spun with wonderful facility.

Some species have the power of directing long threads to a great distance, by which they convey themselves across rivers or chasms.

The threads thus sent out serve to mount them into the air on which they move to great distances. In a fine clear day in autumn, these threads may be seen from the tops of steeples or other high places, floating at great heights, probably carrying the spiders with them; and it is said they use their feet as oars, ascending and descending at pleasure.

His use of these webs seems to be to catch their prey; and secreted in a hole near, they dart of upon insects when they get intangled, and soon dispatch them. For further details see Edinburgh Encyclo. Vol. 7, page 257

Some of these animals in warm  
climates



climates, are large, and so strong as to catch small birds. William Bartram in his travels in Florida, relates a curious case of this kind, in his pleasing manner. See Introduction to his Book, in our publick Library.

---

33 Of the bursting of boilers in boats propelled by steam.

In 1832 Congress instituted an enquiry upon this subject, with a view to interpose some remedies to the destruction of the lives and property of our citizens. A circular was addressed from the Treasury department to engineers and other men of science, in various parts of the US, which elicited a great number of answers, containing useful matter. Various causes were assigned for these accidents, and schemes proposed to remedy them; but the Bill was reported in the House for that purpose, nothing was done.

Many of the communications made by Gentlemen, to whom the circular was sent, were ingenious, embracing the principles of hydrodynamics and

Chemistry, but there appeared a considerable diversity of opinion among the writers.

In that of Mr. W.C. Redfield of New-York a statement was given of the number of explosions that had occurred in the US from 1817 to 1831 inclusive, the total as follows.

No. of Boats 52. Killed 256, wounded 104—Many other similar accidents have since occurred.

Mr. Redfield thinks the above list of the killed, below the real numbers and puts down 300.

In some of the communications of engineers, mathematical learning was displayed, and algebraic formulae were introduced in the calculations. But none I think exhibited more good common sense than that of Mr. C.A. Davis, one of the directors, and President pro. tem. of the New York and Boston Steam Company. In the close, he remarks he ~~he~~ says ~~says~~ “Let the scientific mystify and puzzle themselves and others as they will about safety valves and square inches, steam gas,

pressure of atmosphere and the difference between an explosion and collapse, it is enough to know that ~~that~~ the accidents are likely to occur; and none likely, when it is insisted on by the travelling world that a boat going 10 & 12 miles the hour, is preferable to one going but 5 or 6, And therefore, until it is clearly proven, by long experience that a boiler wont burst, nor a flue collapse, I think there is wisdom in guarding ad interim against this destructive consequences.”

This appears to be a fair statement of the case and if men choose to invent schemes to fly like birds, they must expect their wings will sometimes fail them. The truth is, we attempt too much speed both in our steam boats and rail road Cars; and with all the precautions within the power of man, fatal accidents will happen. On the whole, it must be admitted that Steam Boat navigation is an unsafe mode of conveyance. It

It may be said indeed that no vehicle affords a safe conveyance, or a conveyance not liable to accidents. The distinction here intended to be made is, that land carriages of a simple construction are fully understood, and any weakness or failure of the parts, are seen by an eye of ordinary care, and may be easily remedied; but in a steam engine so complex as these used in large boats, the bursting & collapsings of the boilers, are owing to so many causes, that it is difficult if not impossible for the most vigilant to foresee and effectually guard against them. A boiler submitted to the most rigorous trial of its strength may soon after become defective, unknown to the engineer, and explode with most terrible consequences. The accidents that occur on land are in no degree so fatal; and where is the man who would not prefer a broken limb, or even a head, to an explosion of a boat, where not only his limbs may be broken, his body enveloped in a furious steam but projected into the sky like a bomb still then to sink, food for sharks!

### 34 Lothrops Ambuscade

In Drake's Book of the Indians (Book 3d, page 27) we have some particular of this affair, not found in Hubbards.

The force sent from Hadley to Deerfield is said to be 88 men who on their march from Deer field ~~they~~ were attacked at Sugar Loaf Hill, by a force of Indians computed at 1000, and almost every man killed 18 of the slain belonged to Deerfield, said to be teamsters; the whole number ~~killed~~ then would be 106; including the few who escaped. The Indians killed, and stated at 96 "They cut open the bags of wheat and feather beds and scattered their contents to the winds"

The force under Mosely is stated at 70 men, who fought from 11 o'clock until almost night, when he was obliged to retreat with the loss of 2 killed & 11 wounded; but Major Treat coming up with 100 English and 60 Mohegans, the attack was renewed, and the Indians compelled to retreat. When Mosely first approached the ground the Indians cleared him to begin the fight, and

exaltingly said to him “Come Mosely, come you seek Indians, you want Indians; here is Indians enough for you”

It is stated that Lothrop suffered his men to stroll about while passing a dangerous defile, many of them having been so foolish and secure, as to put their arms in the Carts, and step aside to gather grapes. One writer says “this was a black and fatal day, wherein there were 8 persons made widows, and 26 children made fatherless, all in one little plantation, and in one day; and above 60 persons buried in one dreadful grave”

This probably must be the one recently found in the street, in front of Mr. Whitney’s house. All, it is presumed, were not buried at that spot.

Mr. Drake quotes as authorities I. Mather’s History of the War, and A Manuscript Letter written at the time—The former was shown to me by Mr. Everett last winter, and he then informed me it would be published in the next number of the Historical Collections. the letter should also be printed in the same work.

### 35 Records of the Variation of the Needle

In Prouds History of Pennsylvania I find the following notices of the variation of the needle in early times, taken he says, from Dr Douglas Summary of the British settlements in America.

The streets of Philadelphia, anno 1682. were laid out with great preciseness.

N.  $18^{\circ}$ E: anno 1742 they were found to be  $15^{\circ}$ E. This in 60 years, was  $3^{\circ}$  alteration ~~about~~ one degree in 20 years, decreasing.

In running the line between Pennsylvania and Maryland, in 1686, the variation was  $9^{\circ}$  westerly. In 1739, in running the east and west line, it was found  $5^{\circ}$ -30' west; difference  $3^{\circ}$ -30' in 53 years.

In 1743, in running the line between East & West Jersey 150 miles & 20 Chains, the variation at the south and (at Egg Harbor) was  $5^{\circ}$ -25' west; and at the north end of the line, on Delaware River, Lat.  $41^{\circ}$ ,40', it was  $6^{\circ}$ -35' West.

In 1739, the line between Pennsylvania & Maryland (about 15 miles southerly of Philadelphia) was run with a variation of  $5^{\circ}$ -30' west equal about one degree in 20 years.

At Cape Henlopen, 1748 the variation

was 4° west, decreasing. See Proud vol. 1, page 245—Philadelphia Edition 1797 Cap. 5. The variation from the first settlement of this country, until about 1812, continued to lessen or the north end of the needle moved easterly; since 1812 the needle is moving westerly, or increasing.

In early times the boundary lines of the provinces were run by the magnetic needle, of course, without much accuracy. Astronomical methods are now adopted. The first survey of this kind in America, I believe, was made by Charles Mason and Jeremiah Dixon in 1762, two English astronomers who, the year before, were employed to observe a transit of Venus at the Cape of Goodhope. These two gentlemen ran the line between Pennsylvania and Maryland, by tracing a great circle and setting off into the latitude (See page 72 of this Book)

---

### 36 Climate of the Mississippi Valley

Until recently it has been the general opinion that the climate of the valley of the Mississippi is warmer than ~~than~~



that of the same latitudes in the maritime districts; and I had supposed the fact too well established to admit of a doubt. M. Volney who travelled extensively in the United States, subsequently to his arrival in 1795, in treating upon the Mississippi valley, says, "the climate is warmer, in the proportion of three degrees of latitude than the maritime districts." But some are now disposed to consider him as a visionary theorist and assert that Volney's position is the reverse of the truth.

In the remarks in the Western Traveller at the close of the Northern Traveller, we find the following "The opinion has been entertained that in corresponding latitudes, the temperature is higher in Mississippi valley, than between the mountains and the Atlantic. This we apprehend is an error to the establishment of which, the counterings of Volney and other theorizing travelers have contributed" And in page 392 it is said "the mean cold of winter is greater along the center of the valley than in corresponding latitudes, near the ocean by 2 or 3 degrees." The opinion of the higher

Method of tracing a Line of Latitude

temperature of the Valley did not originate with Volney; for I heard it advanced long before he visited this country; and if we impute error to him in this respect it is believed he is as near the truth as the writer of the western traveler.

The fact that the western side of Continents north of the torrid zone is warmer than the eastern in corresponding latitudes, from the prevalence of westerly winds over the northern hemisphere, is pretty well established. In the Oregon territory, between the latitudes of  $40^{\circ}$  &  $60^{\circ}$ , not only the winters, but the summer are said to be very mild, like those on the west coast of Europe in similar latitudes.

If this be the fact, it would be very singular if the climate, as we proceed west, should be found colder than eastern places. The Rocky Mountains may in some degree effect the Climate of the Mis. Valley but is believed the westerly winds, as a general cause, must predominate, and render the eastern regions more mild than those of the east. The subject requires examination.

<u>Contents</u>	page
1. Frost—a destructive one	1
Dr. Wells on Dew	2
His experiments and theory	3
Inferences	6
2. Clearing a Country of its Native Woods	7
Effects of; queries and conjectures	8 et. seq.
3. Vegetable Mould & Morasses	12
To determine the vegetable mould in a soil	14
4. Method of placing a Transit Telescope } on the Meridian of a Any Place }	14
Remarks on	19
5. Electro-Magnetism	20
Barlow's Correcting Plate	21
Effects of rotation on magnets	ib
6. On the Improvements in Navigation	23
Importance of Lunar observations	24
Capt Hall's extraordinary Land fall	25
7. Narrative of the late British Cam- } paigns in America }	28
Faults in the plans of our commander	29
Inefficiency of militia troops	33
Reflections on the subject	34

Continued

8. The Mirage, noticed at Salem	36
9. Height of Deerfield Et. Mountain	37
10. Notice of Specimens of Plants &c. of Cuba by } Mrs. Wollstencraft	38
11. Of Botany in its purest form	42
12. Military Etiquette and Dress	47
13. Convention of Whigs at Worcester } with remarks on their resolutions	52
14. Notice of the American Almanac	62
Additions proposed	63
15. The Weather in September	66
16. Military Parade at Bloody Brook	68
17. Steam Carriages first used	70
Oliver Evans plans	ib
18. Method of Tracing a Line of Lat.	72
Boundaries of Pennsylvania	74
Do. of Massachusetts	76
19. The Weather, Oct. 10	77
Remarks on a diminution of temperature	78
20. Franklin Mercury's Notice of the late parade	80
21. Visit to Bemis Heights inserted } in Knapp's monthly magazine	85
22. Isometrical Perspective, Notice of	87

23. Autumnal Fevers	89
Dr. Curries theory of	90
24. Orthodox Efforts	95
25. Of Certainty and Belief	99
26. Report of the Survey of a ship ca } nal from Ontario to Lake Erie }	109
27. Florida War renewed	115
28. B. G. Hallett's letter to Geo. Everett	118
29. Meteor Seen at Deerfield	125
30. The Crop of Indian Corn	127
31. Mr. Giles' Lecture on Electricity	128
32. Of Spiders ( <u>Arancides</u> )	132
33. Of the bursting of steam boilers	134
34. Particulars of Lothrop's Ambuscade } from Drake's Book of the Indians }	138
35. Old Variation of the needle	140
36. Climate of the Mississippi Valley	141
37. Steam Boat Disasters	next page
38. Sermon on the occasion of a } visit of Indians by Rev. John } Fessenden	145

### 37 Steam Boat Disasters

On the 25<sup>th</sup> of October the steam Boat Royal Tar, which plies between St. Johns and Portland, took fire in Penobscot Bay about two miles from Fox Island, and was consumed with from 26 to 30 passengers. The No. on board was 90 to 100; about 60 were taken off by the eastern Revenue Cutter. The fire took about 2 oclock PM as the Boat was at anch or for the purpose of filling the boilers.

The bursting of boilers then is not the only difficulty attending these vessels; the quantity of fire on board, will forever expose them to fire accidents even with the utmost care. Will it still be believed that these vessels can be safely employed in a naval action, with the requisite quantity of gun powder on board? The supposition is preposterous.

Another of these vessels was wrecked on Pea Island Beach, on the coast of North Carolina, about the 15<sup>th</sup> of October last. She was called the William Gibbons and had on board 128 people, all of whom were safely landed, but suffered severely before they could be relieved. The Boat was driven to land by a tremendous Gale.